

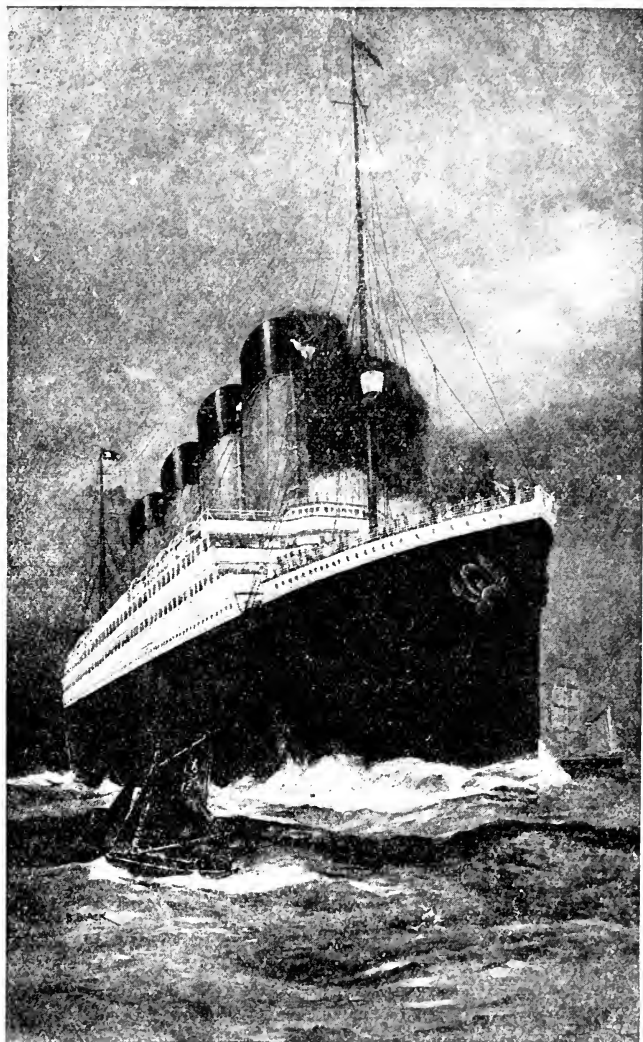
PETMAN'S
COMMERCIAL HISTORY

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COMMERCIAL HISTORY



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COMMERCIAL HISTORY

AN INTRODUCTORY TREATISE
FOR THE USE OF ADVANCED
CLASSES IN SCHOOLS

BY

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Commercial History to the London Chamber of Commerce.

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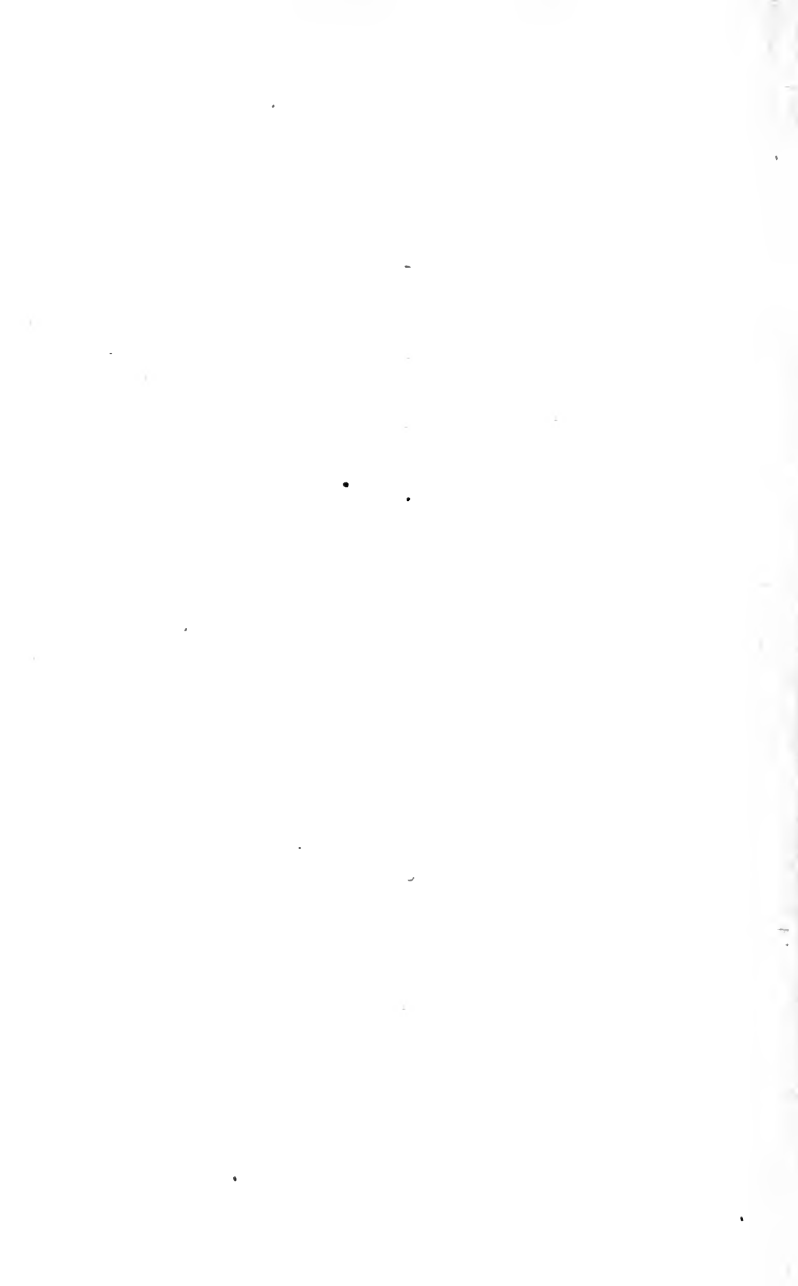
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COMMERCIAL HISTORY.

PART I.

INTRODUCTION.

What Commercial History is.

Commerce means the exchange of commodities, especially on a large scale between different countries and districts. Commerce promotes the intercourse of nations, who thus learn from and influence one another; the competition of commerce stimulates intellectual activity, fosters enterprise, promotes exploration and colonising, produces wealth, and thus adds to the resources of a nation, and supplies the fund from which the revenue is replenished, and literature, art, and science are supported. Commerce is thus a most important factor in civilisation. The progress of civilisation is a topic with which history deals, and therefore commerce as one of the factors of civilisation plays an important part in history.

The part of history which treats of commerce is called commercial history, from the study of which we learn what changes have taken place in the methods of trade and industry, and how at different times commerce has grown or decayed, and different nations have been distinguished for commercial success, how certain kinds of merchandise have at all times been in request, while other kinds have been produced or sold in one age and not in another, how the streams of traffic have changed according to the extent of geographical knowledge or the influence of

political events. We can thus trace the stages in the process by which nations become mutually dependent upon one another for the supply of the necessities and refinements of life. From commercial history we learn what are the points of resemblance, and what are the points of difference, between the commerce of to-day and the commerce of Europe in the Middle Ages, or of Rome under the Empire, or of Athens in the days of her prime.

The most important part of commercial history to us is that which deals with English commerce. To understand this properly we must also study the commercial progress of other European nations of modern and mediæval times, and of those nations of antiquity, such as the Greeks and the Romans, who were commercially important and connected with the development of European commerce. Then again, in order to understand the development of commerce among the Greeks and the Romans we must go farther back and study the history of the nations who in some respects were their teachers, viz. the Assyrians, Babylonians, Egyptians, Phœnicians, and Carthaginians. Besides the nations mentioned, there were others in antiquity and later times who reached a high degree of civilisation, such as the inhabitants of Hindostan, China, Mexico, and Peru, but these countries produced little or no direct effect on European commerce, and play an unimportant part in commercial history.

How far back does Commercial History go?

In commercial, as in other history, the only facts that we can be sure of are those which are established by contemporary or nearly contemporary evidence. Such evidence is not available until one or other of the arts of writing, painting, engraving or carving has reached such a stage that permanent records of events can be made. It is difficult to give a time when commercial history begins, for in Babylonia, Assyria

and Egypt, a high stage of commercial and industrial activity had been reached at the time when the earliest contemporary records of those countries were made. While it may be doubted whether we can be sure of any date in European history which is earlier than the 8th century B.C., yet contemporary records of isolated facts in Babylonian, Assyrian and Egyptian history exist, which carry us as far back as 4000 B.C.

Division of the Subject. Means of Communication.

Commerce cannot be carried on between different countries unless means of communication exist. Means of communication are of two kinds:—(i.) natural, (ii.) artificial. (i.) Natural means of communication are:—(a) waterways, such as rivers, lakes, the narrow seas, the ocean, (b) land routes, such as level plains and mountain passes which are available without improvement by the hand of man. (ii.) Artificial means of communication are:—(a) by water, *e.g.* canals, (b) by land, *e.g.* roads and railways. The highest and latest stage in commercial development is reached when oceanic voyages are undertaken; the preceding stage is that of coasting voyages and voyages in the narrow seas, and the lowest stage of all is when trade is only carried on by the use of rivers and natural land routes.

To the lowest stage belong the beginnings of civilisation in Assyria, Babylonia and Egypt; to the second belongs the commerce of the Phœnicians, the Greeks, the Romans and the European nations of the Middle Ages; the highest stage was not entered upon till the 16th century A.D., when oceanic voyages were undertaken by most of the nations of Western Europe. It will be found through all these stages that certain features in commercial history are permanent while others change. The traffic from India and the East to the West in gold and precious stones, spices, silks, etc., is a permanent feature, and was carried on when history begins

and is carried on now. The course that the traffic took varies ; up to the 15th century A.D. it went along the Mediterranean Sea ; after the 15th century it went round the Cape of Good Hope, and in the 19th century it resumed its old route along the Mediterranean. So wool and woollen goods have been at all times in the history of the world articles of trade, while cotton goods, though used from remote antiquity in the East, were used but little in the West till the 18th century A.D.

Slaves were an article of traffic throughout antiquity up to the fall of the Roman Empire. The traffic in slaves ceased, however, in Christian Europe about the end of the 12th century ; but negro slaves from Africa became an article of trade from the 15th to the 19th century. Certain articles of food and drink, such as corn, wine, salt, fish, and meat, have been articles of traffic from very early times ; on the other hand, some of the commonest articles of food are of late introduction. Thus the potato was not known to Europe before the 16th century. Sugar was scarcely known in antiquity at all beyond the East, and did not come into common use in Western Europe before the 18th century, when tea and coffee, articles which again were unknown to Europe before the 17th century, came into fashion. The precious metals, gold and silver, have, from the beginnings of civilised life, been always in request as a medium of exchange as well as for ornament. Of the other metals, copper and tin were, in very early European history, most in demand for the making of bronze, the place of which is taken in a later period by iron. The application of steam to manufacture, and the successful smelting of iron by coal were the inventions of the 18th century, A.D., from which time iron and coal, which were known in antiquity, and had been chiefly used in England for domestic purposes, began to be the chief source of our wealth. Steam locomotion by land and by sea, communication by electric telegraphs and telephones, and lighting by gas and electricity were inventions of the 19th century.

CHAPTER I.

**First Stage. Rivers as Means of Communication.
Assyria—Babylonia—Egypt.**

A long river forms the easiest means of communication between different districts; thus, we find the beginnings of industry and commerce, on a large scale, in the communities which grew up in the valleys of rivers, viz. :—Assyria and Babylonia in the valleys of the Euphrates and the Tigris, and Egypt in the valley of the Nile. So in modern times we see the commerce of a country like China centring round its great rivers, such as the Yang-tse-kiang, which furnish easy means of access into the interior; while Africa has been opened up by means of its great waterways, the Nile, the Niger, the Congo and the Zambesi; and the settlement of North America followed in part the course of the St. Lawrence and the Mississippi.

The Euphrates, on which stood Babylon, the chief city of Babylonia, is a navigable river of great length flowing into the Persian Gulf, and so affording means of communication at its mouth with India and Arabia, and towards its source with

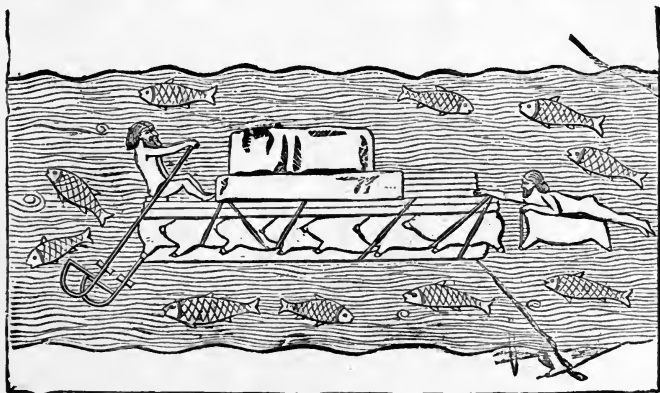


FIG. I. STONE CARRIED ON RAFT ON THE RIVER ZAB.

(The raft is formed of a framework of wood made buoyant by inflated skins, and is rowed by two men in the front.)

the highlands of Armenia. At one part of its course it is within one hundred miles of the Mediterranean Sea ; parallel with it for some part of its course runs the Tigris, which ultimately joins its waters, and on which stood Nineveh, the chief city of Assyria. The Greek historian, Herodotus (i. 194),

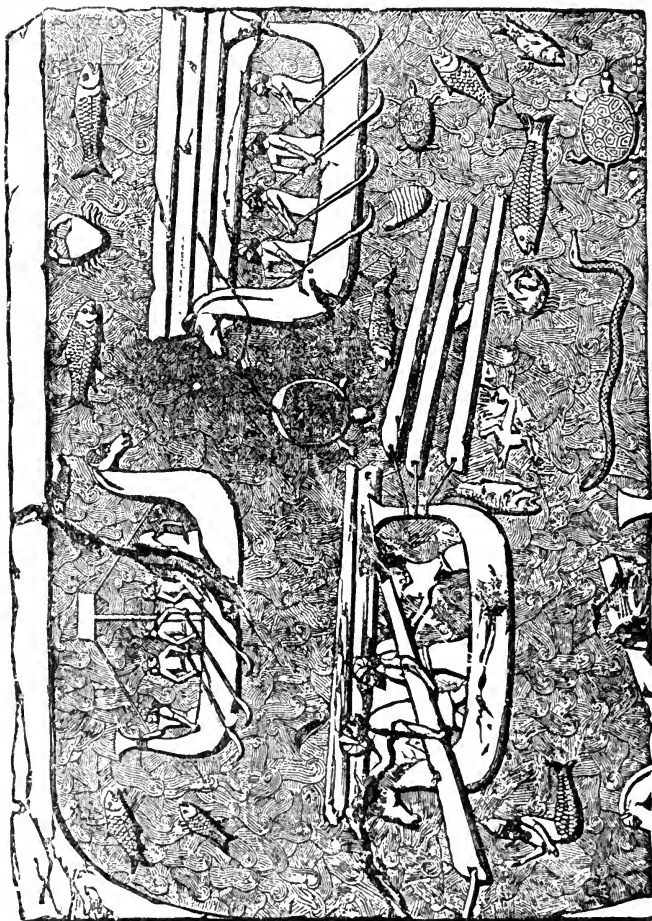


FIG. 2. TIMBER CARRIED IN BOATS ON THE ZAB FOR THE BUILDING OF SARGON'S PALACE AT DUR-SHARRUKIN.

describes how commerce between Armenia and Babylon was carried on by means of the Euphrates, on which the Armenians launched round boats of hides full of merchandise, particularly of palm-wine. Each of these boats carried two men to guide its course, and one or two asses. The boats were carried by the current to Babylon, where the merchandise was sold; the hides were then stripped off the boats and carried back to Armenia on the backs of the asses, the current being too swift for the boats to go back by river. Stones, used in Assyrian buildings, were in the same way floated from

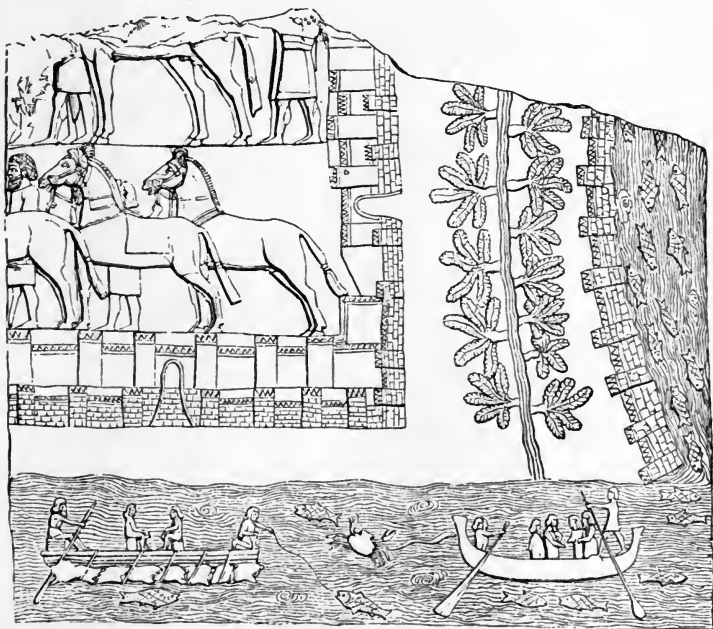


FIG. 3. BAS-RELIEF FROM NINEVEH, REPRESENTING FORTIFIED CITY AND A RIVER WITH BOAT, RAFT, AND A NARROW STREAM OR CANAL PLANTED ON BOTH SIDES WITH TREES.

Mount Zagrus down the Zab and thence down the Tigris. Representations of this kind of river traffic are to be found in Assyrian and Babylonian monuments (see figures 1 and 2).

The Euphrates and Tigris were connected by a network of canals used for purposes of irrigation and commerce (see figure 3). Nebuchadnezzar, king of Babylon, constructed a ship canal nearly 400 miles long, which joined Babylon to its seaport Teredon at the mouth of the Euphrates. Trade by land between Assyria or Babylon and the Phœnicians, Egypt, or the centre of Asia, was carried on by caravans of merchants, who loaded their goods on the backs of camels (see figure 4), horses, mules, and asses, while the Assyrian sculpture shows that waggons and carts drawn by mules and oxen were not unknown as means of transport (see figure 5). Highways and causeways across the desert, which bounded Assyria and Babylon



FIG. 4. LOADING A CAMEL
(NINEVEH).

and carts drawn by mules and oxen were not unknown as means of transport (see figure 5). Highways and causeways across the desert, which bounded Assyria and Babylon

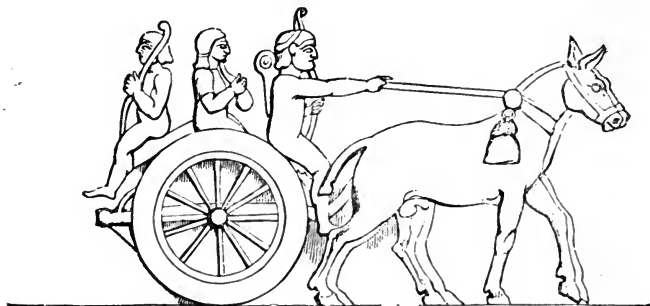


FIG. 5. ASSYRIAN CART (NINEVEH).

connected these countries with Syria and Palestine, and thus with the Mediterranean Sea and Egypt, while a land trade with India was carried on through the centre of Asia. (See Map, page 22.)

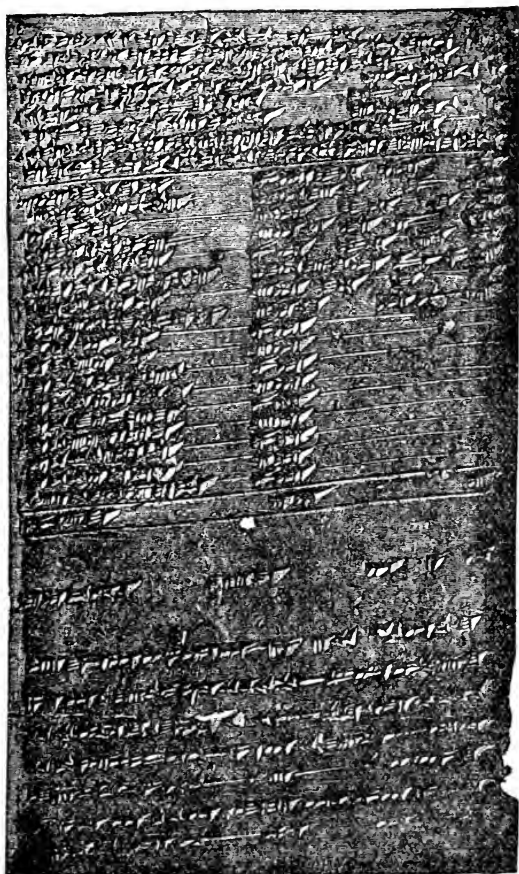


FIG. 6. TABLET (CONTAINING HYMN) FROM ASSHURBANIPAL'S LIBRARY AT NINEVEH.

Assyria.

Of the trade of Assyria comparatively little is known, but the monuments which have been unearthed from its buried cities, such as Nineveh, bear witness to the existence there, more than three thousand years ago, of a people who had acquired great industrial aptitude, and must have carried on a considerable trade. The walls of the palaces that have been unearthed contain a history of the deeds of the Assyrian kings, and *bas-relief* sculptures, and decorations of great artistic excellence.

Writing was known to the people of Assyria and Babylon from very remote times, and the earliest known library is probably that of Asshurbanipal, King of Assyria (884-860 B.C.). This library long lay hidden, and has only in comparatively recent times been discovered. It contains about 10,000 books, or tablets, stamped with writing in cuneiform (wedge-like) characters (see figure 6), and among them are to be found a treatise on agriculture, and deeds relating to sales, loans, mortgages, and other contracts.

The palace of the Assyrian King, Sargon, at Dur-Sharrukin, which has been recently unearthed, was one of great

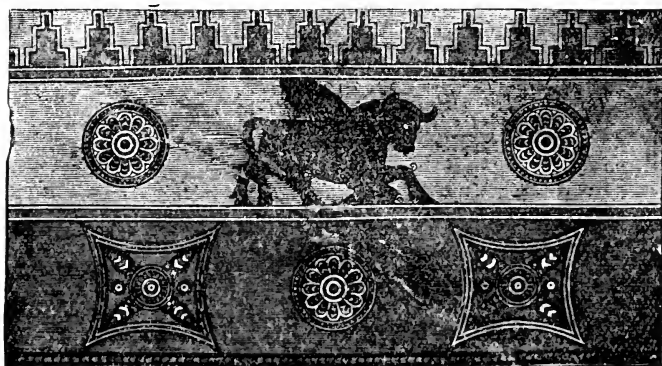


FIG. 7. COLOURED FRIEZE IN ENAMELLED TILES (NINEVEH).

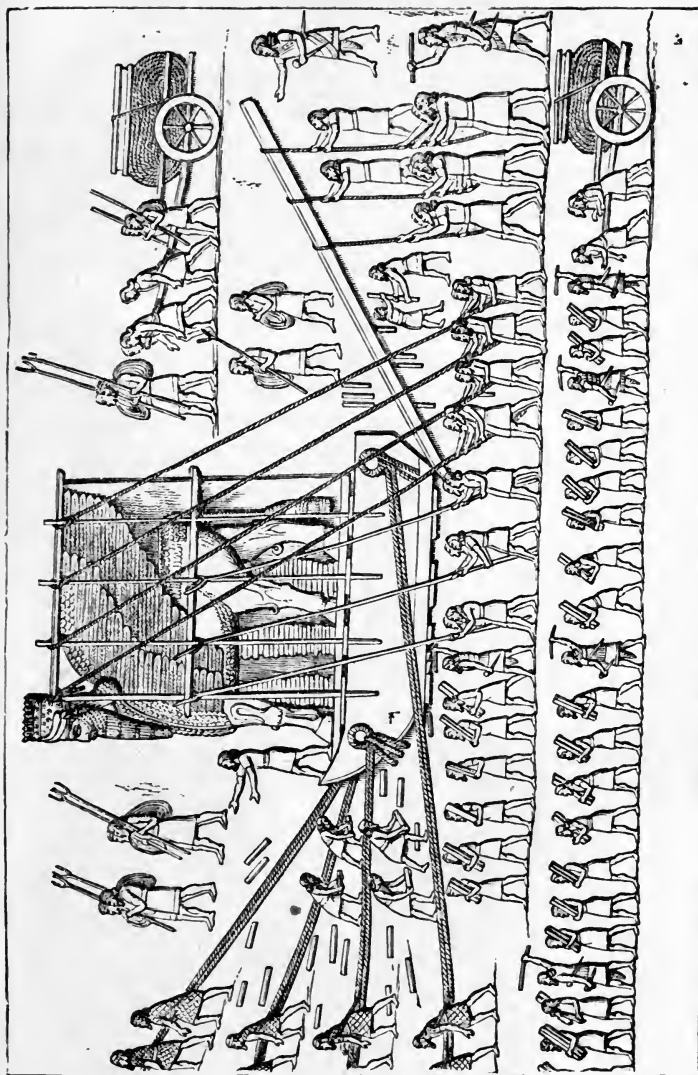


FIG. 8. ASSYRIANS REMOVING A WINGED BULL FOR SENNACHERIB'S PALACE AT NINEVEH.

The figure of the winged bull rests on a sledge, and is cased round with beams and cross-bars; it is held upright by men with ropes and forked wooden props; under the sledge are rollers for moving it; behind is a lever used by the workmen for lifting it; in front are men pulling it with ropes; in front of the bull is an officer giving directions; two hand-carts containing spare cables, etc., and a long file of extra workmen carrying tools, are at the rear and side.

magnificence, composed of ivory and wood from palm, cedar, and cyprus trees, with doors overlaid with bronze, with colossal winged bulls, sculptured slabs, and enamelled tiles (see figure 7).

Other sculptures show how winged bulls were transported to Sennacherib's palace at Nineveh (see figure 8).

The discoveries in the Assyrian cities show that the Assyrians had articles of glass, used lenses, and could engrave gems; they made considerable progress in architecture and sculpture, were acquainted with the use of the arch in building, the making of cement and of glazed bricks; of drains, channels, embankments, and canals. Assyria was



FIG. 9. TERRA COTTA TABLET REPRESENTING INDIAN DOG, FROM BABYLON.

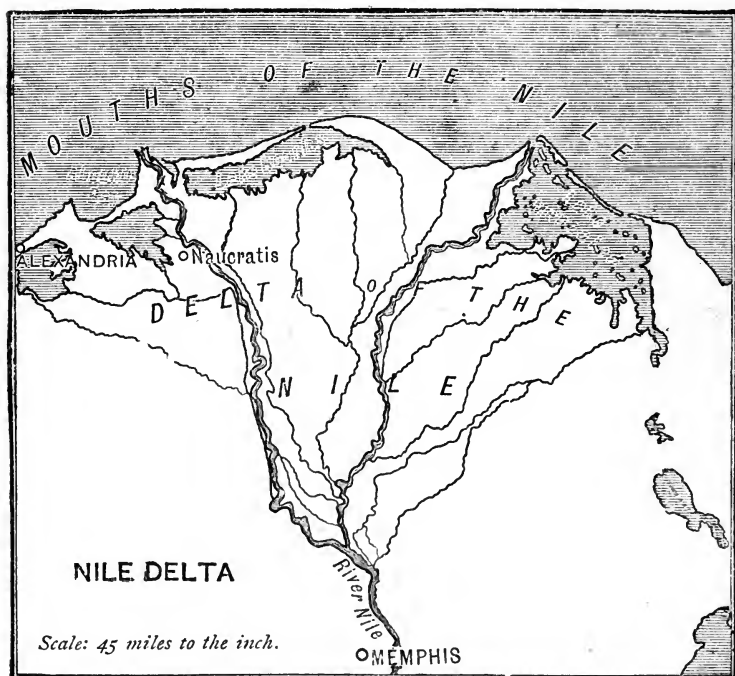
conquered and its power overthrown by a confederacy of the Medes and Babylonians in 606 B.C., and within three hundred years its chief cities were ruined and deserted. It was not till 1842 A.D. that Nineveh was re-discovered, and the records on the walls of its palaces made known.

Babylon.

Babylonia was a great trading and manufacturing country. The Hebrew prophet, Ezekiel, calls Babylon "a land of traffic and a city of merchants" (xvii. 4). The city of Babylon was one of immense size, and it traded with the East and the West. From the countries bordering on the Persian Gulf and the Indian Ocean it obtained pearls and other precious stones, cotton, spices, frankincense, ivory, ebony, silk and dyes. Many of these articles came directly or indirectly from India, whence also came by land precious stones and a much-prized breed of dogs (see figure 9). It traded with the Phœnicians, from whom it obtained cedar-wood and tin for the making of bronze, while it exported corn, of which it grew enormous quantities, and the products of its manufactures, carpets, linen, silk and woollen fabrics, and embroidery, for which its citizens were celebrated. Even after the destruction of the Babylonian power, and the final capture of Babylon by the Persians (521 B.C.), it retained a great deal of its trade and wealth. Babylon was one of the twenty satrapies of the Persian Empire, and it paid a larger tribute than any of the other nineteen. It supplied provisions for the Persian King and his court during one-third of the year. After the fall of the Persian Empire it sank into a mere village, and its great monuments remained buried till they were excavated by Layard. The people of Babylonia and Chaldea were famous astronomers, and from them the Greeks learned the sun-dial, and the division of the day into twelve hours, and their system of weights.

Egypt.

Egypt is a country much more closely connected with European commerce than either Assyria or Babylonia, and while the cities of Babylonia and Assyria decayed and disappeared from history at a comparatively early date, the commercial importance of Egypt survived the loss of its independence, and has remained to the present day. Egypt has, in fact, a continuous history of three or four thousand years. It owes its commercial importance to its position—being situated at the corner of the Mediterranean Sea, and having access to the Red Sea, it is the half-way house between the East and the West, and most of the trade between Europe and



the southern nations of Asia must necessarily pass through it. Moreover, the river Nile, which flows right through the country, affords a means of communication between the Mediterranean coast and the interior of Africa, and its waters, especially at the time of the annual inundation, give fertility to the land on its banks.

Egypt has been called the "gift of the Nile," and its fertility only extends as far as the fertilising influence of the waters of the Nile reach, or can be carried by irrigation. One peculiar feature of the Nile is the Delta, the division of the stream into seven mouths, which make the whole of Lower Egypt a land of amazing fertility. No soil is so fertile as alluvial soil, *i.e.*, soil formed by deposits brought down by a river, and the greater part of Lower Egypt is alluvial. Some of the land grows three crops in the year, first a grain crop and then two crops of grasses or esculent vegetables. Egypt, besides wheat, produces flax and dhurra, and abundance of lentils, garlic, leeks, onions, endive, melons, cucumbers, and lettuces. Wheat is its chief product; from very early times there has been "corn in Egypt," which has been called the "granary of the world," and the "resource of neighbouring nations in time of dearth." Rome, in the time of the Empire, depended almost entirely on Egypt for its supply of corn.

The Nile, with its slow stream, is much more suitable for navigation than the Euphrates and Tigris with their swifter currents. It is generally possible with the help of a sail to ascend the Nile at a fair pace, and from the earliest times the Egyptians seem to have been expert in the management of boats and to have learnt the use of the sail. The hills which bound the valley of the Nile afford an ample supply of stone suitable for building and sculpture—limestone in the north, sandstone in the centre, granite and syenite in the south. From the syenite quarries of Assouan stone was floated down to the Mediterranean coasts for building more than three thousand years ago. Egypt possessed some mineral wealth,

gold, copper, iron and lead, and precious stones, such as emerald, jasper, agate, chalcedony, etc.; the date and the dom-palm grow in abundance. The acacia furnished gum, while the papyrus reed furnished a material from which was made the earliest kind of paper, the word paper being itself derived from the word papyrus. Egypt had abundance of water-fowl and fish, and indeed of all the natural products suitable for the maintenance of a large population and for industrial and commercial activity.

From very early times and at all ages, Egypt, especially in the north, seems to have been thickly peopled. The architecture and other works of the early Egyptian kings arouse

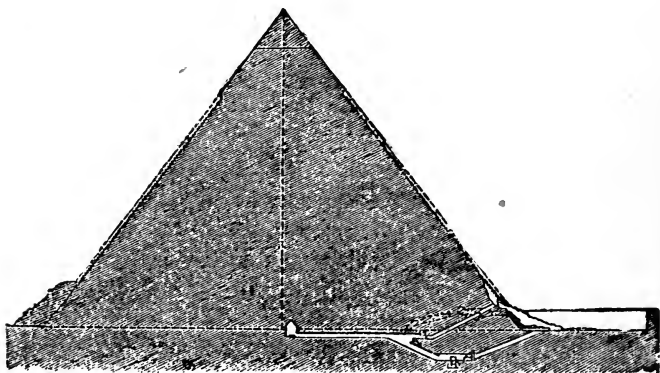


FIG. 10. SECTION OF AN EGYPTIAN PYRAMID.

admiration for their vastness and magnificence. The Great Pyramid, which has been called "in respect of its mass the most prodigious of all human constructions," is said to have taken the continuous labour of one hundred thousand men for twenty years (see figure 10 for a section of an Egyptian Pyramid); the pillared hall of King Seti at Karnak has been described as "the noblest effort of architectural magnificence ever produced by the hand of man." (Fergusson.) Works of public utility were also constructed

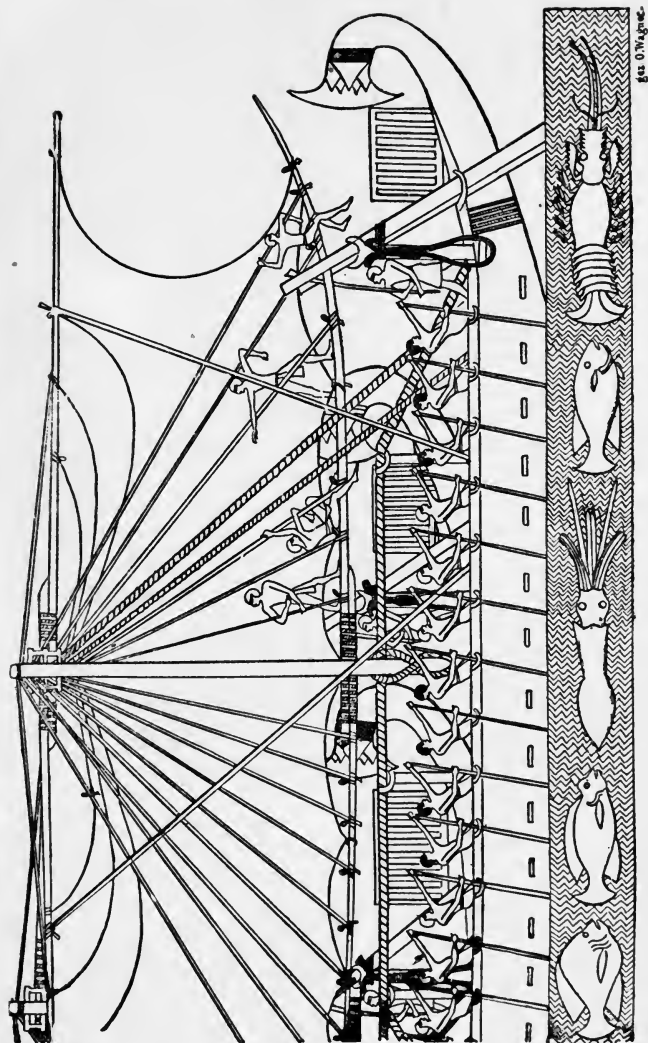
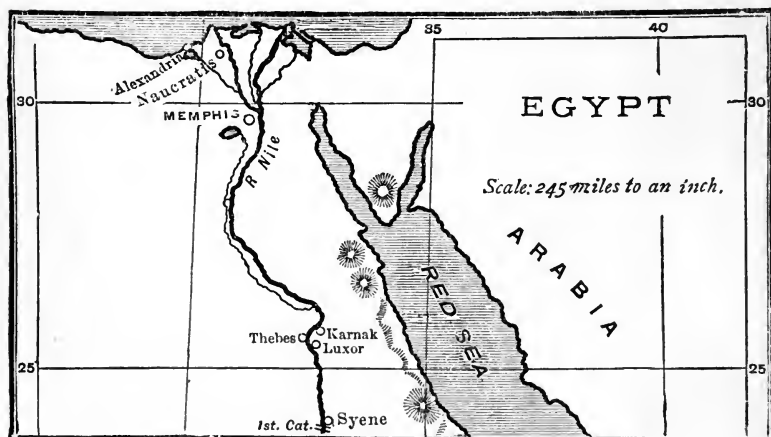


FIG. 11. EGYPTIAN SHIP (ABOUT 1600 B.C.).

by the early Egyptian kings ; public granaries were built for the storage of grain to provide for times of dearth, wells sunk in the desert to provide water for the caravans, reservoirs made for the storage of the Nile water, canals dug for irrigation and commercial purposes ; a canal between the Nile and the Red Sea was constructed by Seti I. and Rameses II. ; it fell into disrepair, and after an unsuccessful attempt of Neco to repair it, was re-opened by the Persian king, Darius.

Egypt seems to have carried on a considerable foreign trade during the time of its independence, although the trade was chiefly in the hands of foreigners, such as the Arabs, who carried on the caravan trade, the Phœnicians, and in later times the Greeks. Among the articles of export from Egypt were corn, gum, gems, glass, alum, paper from the papyrus, linen yarn, fine linen, muslin, ivory, ebony, ostrich feathers, horses and chariots ; among the imports were frankincense, "spices and balm of myrrh" (Genesis xxxvii. 25), which the Egyptians used for the embalming of their dead, and for their elaborate religious ceremonies, slaves, precious stones, oil and wine. Mention is made of fleets of ships launched



by the Egyptian kings for purposes of commerce and conquest. "The most ancient representations of sea-going ships that the world contains" (see figure 11) are to be found in the *bas-reliefs* of the Temple of Ammon, erected by Queen Hatshepset, who reigned 1600 B.C. (Rawlinson's *Ancient Egypt*, Story of the Nations Series, p. 185). These *bas-reliefs* relate the story of a commercial and exploring expedition sent by Queen Hatshepset from the Red Sea to the land of "Punt," which is said to be either south Arabia or Somaliland. The Egyptians brought back "incense trees" as well as gold, silver, ivory, ebony, cassia, apes, dogs, slaves and leopard skins.

In general, however, although the Egyptian kings had large fleets, they seem to have been content to leave the foreign commerce in the hands of other nations, and to have used the services of foreign sailors, the Egyptians themselves having a distaste for the sea. One of the most remarkable feats of exploration accomplished by any nation of antiquity was the circumnavigation of Africa from east to west by Phœnician sailors, under the orders of the Egyptian King, Neco, towards the end of the 7th century B.C.

The Phœnicians at first carried on the greater part of the Egyptian foreign trade, and were allowed to settle in Memphis. The Egyptians, for a long time, seem to have had the same dislike of intercourse with foreigners that the Chinese still have, but King Psammetichus, the father of Neco, made use of Greek mercenary soldiers, and encouraged Greeks to settle in, and trade with, Egypt. The port of Naucratis, on the Canopic branch of the Nile, was assigned to them as a residence, and settlements from the most prominent Greek states were set up there, and a brisk trade grew up between Egypt and Greece, Egypt importing from Greece wines, pottery, and works of art, and exporting into Greece corn, alum, muslin, linen, and paper. The Greeks learnt from Egypt the art of land-measuring, which the Egyptians brought to great perfection. The elaborate system of picture-

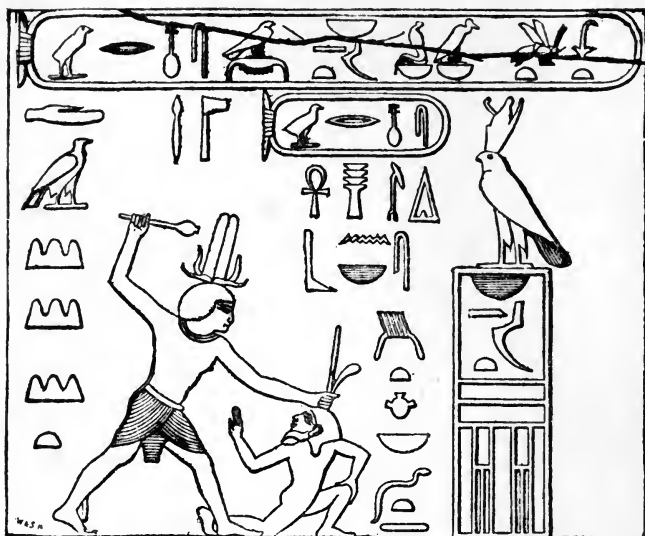


FIG. 12. TABLET OF SNEFERU AT WADY-MAGHARAH IN THE SINAITIC PENINSULA.

This tablet describes Sneferu's conquest of the copper-mines (see the wedges of copper to the left) and the expulsion of the "foreigners."

writing, which the Egyptians invented (see figure 12), and out of which they evolved alphabetic symbols, is said to have some connection with the Phœnician alphabet, which with certain variations was adopted by the Greeks and all the Europeans.

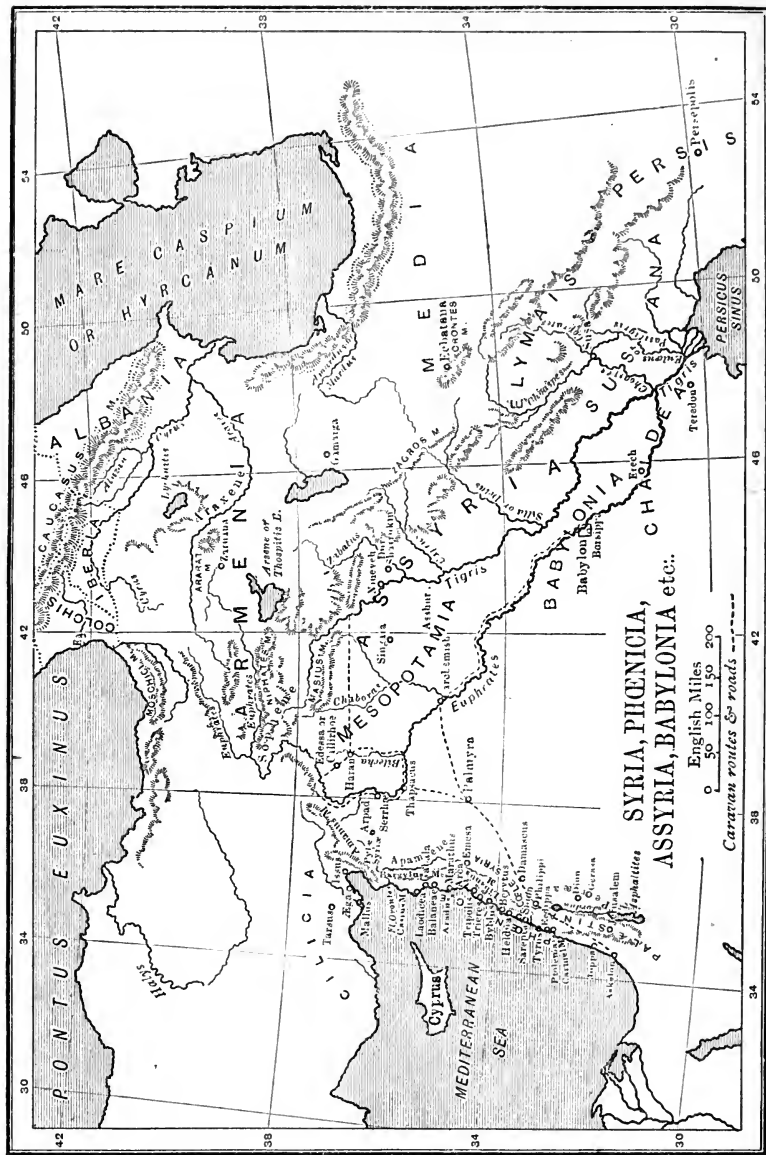
The decay of Egypt as an independent power began with its conquest by the Assyrian King, Esarhaddon, in 672 B.C. It repeatedly rebelled, and re-established an independent monarchy, and was repeatedly re-conquered by the Assyrians, Babylonians, and then by the Persians, and it ultimately became a province of the Persian empire. On the conquest of the Persian empire by Alexander the Great, Egypt became a part of his dominions, and he founded, at the extreme west of the Delta, between Lake Mareotis and the sea, the new city called after him by the name of Alexandria (B.C. 332), which became, and is still, one of the chief commercial cities of the world.

CHAPTER II.

**The Second Stage. Navigation of the Narrow Seas.
The Phœnicians.**

The art of navigation was developed by the Phœnicians, who are the earliest great sailors, traders, and explorers of antiquity. The Phœnicians were a people of a race allied to the Jews, Assyrians, and Babylonians. They settled on a narrow strip of the Syrian coast about two hundred miles long, and never more than thirty-five miles broad, shut in by the mountains of Casius, Bargylus, and Lebanon. On this narrow strip they founded a number of cities, the chief of which were Tyre and Sidon.

From about the twelfth century before Christ the Phœnicians were the chief carriers and navigators of the world; they explored the coasts of the Mediterranean Sea and part of the Atlantic coasts of Europe and Africa. The Phœnician cities were in the centre of the trade of the world, and served as intermediaries between the East and the West. They traded with Babylon by means of caravan routes leading across the Syrian Desert to the Euphrates, and to the North with Armenia and other nations of Asia Minor. They carried on a considerable trade with their southern neighbours, the Jews, and supplied the timber, the artificers, and metal work used in the building of Solomon's Temple. The timber was cut on Mount Lebanon and sent in "floats" or "rafts" by the sea to the Jewish port of Joppa. The Phœnicians and the Jews, in the reign of Solomon, had joint fleets sailing both East and West, one traversing the Mediterranean and trading with Tartessus, in Spain, the other starting from Eziongeber, on the Red Sea, and trading with "Ophir," a country which it is hardly possible to identify, as we know nothing more about it than that these joint fleets reached it by the Red Sea and brought back from it gold, silver, "almug-trees" (said to be sandal-wood), precious stones, and spices. The trade of the Phœnicians with Egypt has already been alluded to.



The country of the Phœnicians afforded inexhaustible supplies of timber for building ships, the coast-line fairly good harbours, and the Mediterranean Sea easy opportunities for adventure and exploration. The waters of the Mediterranean, off the Phœnician coast, contained the shell-fish, which furnished a purple dye, for which the Phœnicians became famous. Near to, and visible from, parts of the Phœnician coast lay Cyprus; and, by following the Cilician and Carian coast-line, ships could easily reach Rhodes and Crete and the islands of the Greek Archipelago. In Cyprus the Phœnicians found mines of copper, which they used for their metal work; minerals were the attraction which led them on to explore and trade with the Greek Islands, Spain, and countries outside the Mediterranean. They seemed to have worked the gold mines in Thasos, in the North of the Ægean, for a number of years. The Greek historian, Herodotus, saw there "a whole mountain turned upside down" by the Phœnicians in search for ore.

The Phœnicians, however, soon withdrew from the Greek Islands and coasts, as they were unable to hold their own against the Greeks, and sought those parts of the Mediterranean where they had no rivals. In the Western Mediterranean the Phœnicians, who are the earliest colonisers as well as navigators, formed a number of settlements in Africa, Sicily, and Spain. On a fertile corner of the coast of Africa opposite to Sicily in a land where corn, wine and oil abounded, they founded Utica, Hadrumetum, Hippo Regius, Leptis Magna and Carthage (850 B.C.) near the modern Tunis. They also settled in Sicily where they founded colonies at Eryx, Egesta and Panormus (Palermo), in Malta, Gozo, Sardinia and the Balearic Isles, and, pressing still farther west, and coasting along the north shore of Africa, reached the Straits of Gibraltar, and, passing outside, planted in the district, to which the name of Tartessus (Tarshish) was given, the cities of Gades (Cadiz) about 1050 B.C., Malaca (Malaga), and Carteia. Here the Phœnicians found a fertile country,

abundance of the finest wheat, oil and wine, wool, alluvial deposits of gold in the river Baetis, navigable rivers reaching far into the interior, mountains rich in gold, silver, quick-silver, tin, lead, and copper. Spain, it has been said, was to the Phœnicians what Mexico and South America were to Spain in the sixteenth century A.D.

Tin was of especial value to the Phœnicians who needed it to mix with copper for the making of bronze, the metal which was then most in use. Tin was the attraction that allured them on to coast along Spain and Gaul, and to enter into communications with it if not actually to visit Great Britain, in the south-east corner of which abundance of tin and lead was found then as now. To the south of the Straits of Gibraltar the Phœnicians also extended their voyages and reached perhaps as far as what is now Sierra Leone.

One instance of the methods of Phœnician intercourse with the natives of the countries on the Atlantic sea-coast is to be found in the "dumb commerce" described by Herodotus as carried on by the Carthaginians. "Outside the pillars of Hercules (*i.e.*, the two promontories which shut in the Straits of Gibraltar) there are people living in Libya. The Carthaginians come to their country and unload their wares and, after arranging them on the beach, return on board their ships and light a fire. The natives, seeing the smoke of the fire, come to the sea-coast and put down gold in exchange for the wares and withdraw to a distance. The Carthaginians then disembark and look at the quantity of gold, and if they think it is enough, they take it up and go away; if it is not enough, they go back to their ships and wait there. Then the natives approach and add more gold till they satisfy the Carthaginians. Neither side treats the other unfairly; the Carthaginians do not touch the gold till it has been made equal to the value of the goods, and the natives do not touch the wares till the Carthaginians have taken the gold away" (Her. iv. 196).

Mention has already been made of the circumnavigation of Africa by Phœnicians under the orders of the Egyptian king, Neco (about 620 B.C.). This voyage is the great exploring feat of antiquity, but it was wholly barren of consequences, was apparently never repeated by the Phœnicians or by any nation of antiquity.

An account of a colonizing expedition sent from Carthage under Hanno about the fifth century B.C. has been preserved to us in a work known as the *Periplus* of Hanno.

The success of the Phœnicians as colonisers culminated in the foundation of Carthage in 850 B.C.; the other settlements of the Phœnicians were more trading factories than colonies, but Carthage became the seat of a great empire, ruling over Africa and Spain.

The growth of the power of Carthage was probably due to a struggle to prevent the encroachment of the Greeks on Phœnician ground. Greek colonies were established in Cyprus, on the east coast of Sicily, on the Cyrenaic coast of Africa, in Spain, and at Massalia, in the south of Gaul, and the Phœnicians had to make a stand to save themselves from being driven from the west Mediterranean as they had been from the Greek islands. Carthage, by the force of circumstances, became not a mere mercantile city like the rest of the Phœnician settlements, but a militant power, which checked the advance westwards of the Cyrenaeans, and prevented Sicily from being overrun by the Greeks.

With the rise of Carthage the cities of the Phœnician mother country declined; many of the wealthiest citizens of Tyre emigrated to Carthage, and the Phœnician cities after being conquered by the Assyrian and Babylonian kings, and after submitting willingly to Persia, sank into decay after the siege and conquest of Tyre by Alexander. Carthage, on the other hand, grew in prosperity and power; it acquired the maritime supremacy and monopolised the commerce of the

western Mediterranean. It founded a great empire in Spain, but it came into collision with Rome, and after three desperate wars it lost Sicily, Spain, its African possessions, and ultimately (146 B.C.) was altogether destroyed by the Romans.

Phœnician Ships.

The exploring feats of the Phœnicians appear all the more remarkable when we consider the nature of the vessels in which they ventured on unknown seas. Their earliest ships were little more than open boats, partially decked, and impelled both by oars and sails. One of the first improvements which the Phœnicians made in ship-building was the construction of the bireme, or ship with two banks of oars, one over the other. Representations of such biremes (see figure 13) are to be found in the Assyrian sculptures as early as 700 B.C. (Prof. Rawlinson's *Phœnicia*, *Story of the Nations Series*, p. 74). No sea could have been so well

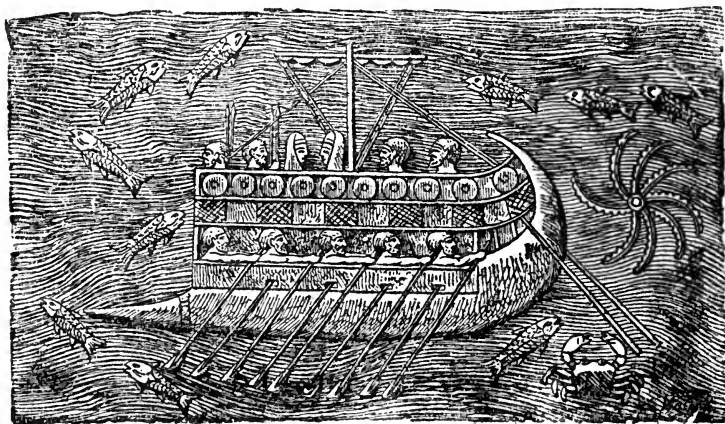


FIG. 13. BIREME OR WAR-GALLY.
(From the Assyrian sculptures.)

adapted as the Mediterranean for a people to learn on its surface the beginnings of navigation. Being land-locked and studded in many parts with islands, it could be navigated from one end of it to the other without losing sight of land. All the sailors of antiquity probably kept close to shore when they could, and never ventured to sea in the winter.

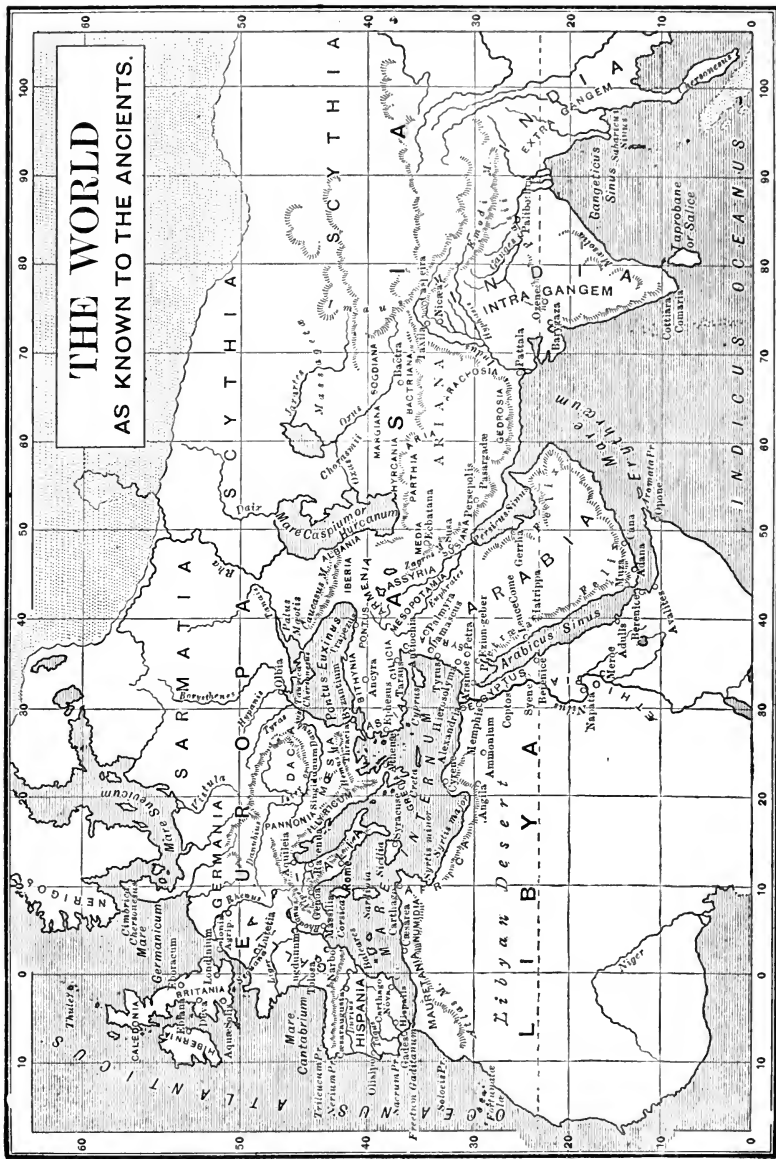
For steering their course, the Phœnicians, like all other nations of antiquity and of the Middle Ages, till the mariner's compass was discovered, relied upon observations of the sun by day and the stars by night. We are told that the Phœnicians cultivated the arts of astronomy and arithmetic for the purpose of reckoning the course of their ships and of steering by night. Xenophon bears witness to the excellent arrangement that the Phœnicians showed in the stowage of their ships. "I think that the best and most perfect arrangement of things which I ever saw was when I went to look at the great Phœnician vessel; for I saw the largest amount of naval tackling separately disposed in the smallest stowage possible." (Xenophon quoted by Rawlinson, *Phœnicia*, p. 195). The Phœnicians supplied a great part of the Persian fleet in the expedition against the Greeks, and bore a willing part in the attempt to suppress their commercial rivals.

Phœnician Manufactures, Industries, etc.

The chief manufactures of the Phœnicians were:—The purple dye from the shell-fish *Murex trunculus* and *Buccinum lapillus*, for which Tyre was noted, the making of glass beads, bottles, vases, drinking-cups, and bowls, the weaving of woollen, linen, and silken fabrics, for which Sidon was celebrated, and working in metal. They were skilful gem engravers and jewellers and workers in ivory, and are said to have been the first people to use ivory in the making of musical instruments. (Rawlinson, 312). They acquired a high degree of skill in mining, and seem

THE WORLD

AS KNOWN TO THE ANCIENTS.



to have understood how to sink shafts and make subterranean passages. The most important invention which they introduced to the Greeks and to West Europe was the alphabet, which, in the form borrowed by the Greeks from them, and slightly altered by the Italians, is the one in use throughout the civilised world. How far the credit of the invention rests with the Phœnicians is a matter of doubt. Probably in this, as in many other matters, they acted as intermediaries, and passed on what they learnt from other sources. This seems to have been the case with the system of weights, which passed from Babylon, through the Phœnicians, into Greece. The Phœnician coins (see plate, Lydian, Phœnician, and Greek Coins, Nos. 3 and 4) are later than the Persian and Lydian. The precious metals which they used as money in early times for their commercial transactions were weighed.

CHAPTER III.

The Greeks.

The races that have been mentioned — the Assyrians, Babylonians, Egyptians, and Phœnicians—though remarkable as the pioneers of civilisation, were far inferior to the Greeks, who first learnt of the Phœnicians, then rivalled, and finally surpassed them. Our knowledge of Assyrian, Babylonian, Egyptian and Phœnician history is but scanty, while of the doings of the Greeks we have accounts by contemporary or nearly contemporary historians, the most important of whom for early Greek history is Herodotus. The Asiatic races and the Egyptians in character, in enterprise, in intellect, fell far short of the Greeks, who seem almost at once to have reached the highest stage of intellectual development. The Greeks first of all the nations of the world attained to and realised the idea of political liberty. They exercised a humanising influence on those with whom they came in contact. Their civilisation attracted and influenced the Romans, and consequently the European nations that arose on the fall of the Roman empire. The home of the Greeks was in the southern part of the most easterly of the three peninsulas of southern Europe, and in the islands and coasts of the Ægean Sea (now called the Greek Archipelago). They formed a number of independent city-states, built on or close to the sea with a view to maritime life. At first they engaged in piracy, but in course of time became traders and explorers. Each city had in its centre the agora or market-place, which was also the spot where the assembly of the people met to legislate and to govern, and where the law courts were held.

The chief Greek commercial states were Athens, Corinth and Megara, on the mainland of Greece; Samos, Lesbos, Chios and Rhodes in the islands of the Ægean Sea; and Smyrna, Miletus, and Ephesus on the coast of Asia Minor. In Asia Minor they came into contact and entertained friendly relations

with the wealthy kingdom of Lydia, the state which is said first to have used gold and silver coins (see plate of Lydian, Phœnician, and Greek Coins, No. 1). As colonisers the Greeks surpassed the Phœnicians, for with the exception of Carthage, the Phœnician colonies were only trading settlements, while the Greek colonies were independent political communities, many of which surpassed in wealth the cities of the mother country. The governing principle of Greek colonising was to establish a town to serve as the exclusive seaport of inland nations.

The earliest Greek explorers were the Samians and the Phocæans. The Samian captain Colæus was the first Greek to visit Tartessus. He made from the sale of his wares there an enormous profit, the tithe of which, dedicated to the temple of Hera at Samos, is said by Herodotus to have been of the value of six talents (about £1,600—see Grote's *Greece*, iii., 280; *Her.* iv., 152). The Phocæans, Herodotus says, were the first of the Greeks to make long voyages, sailing in penteconters—long ships with fifty rowers, and visiting the Adriatic Sea, Iberia, and Tartessus. When hard pressed by the aggressive power of Persia, which conquered all the Asiatic Greeks, the Phocæans left their native city and settled at Alalia in Corsica, where they practised piracy and fought one of the earliest sea fights known against the combined fleets of the Carthaginians and the Etruscans. Their settlement in Alalia was unsuccessful, and they settled in Sicily and Italy, and afterwards founded Massalia (Marseilles).

Greek Colonies.

Sicily and Italy, which could be easily reached from Greece by ships hugging the coast and crossing the narrow passage to Italy, were the countries which first attracted Greek colonists. The earliest Greek colony is said to have been Cumæ, on the western coast of Italy, settled from Chalcis, in Euboea, and from Cyme, in Asia Minor, some

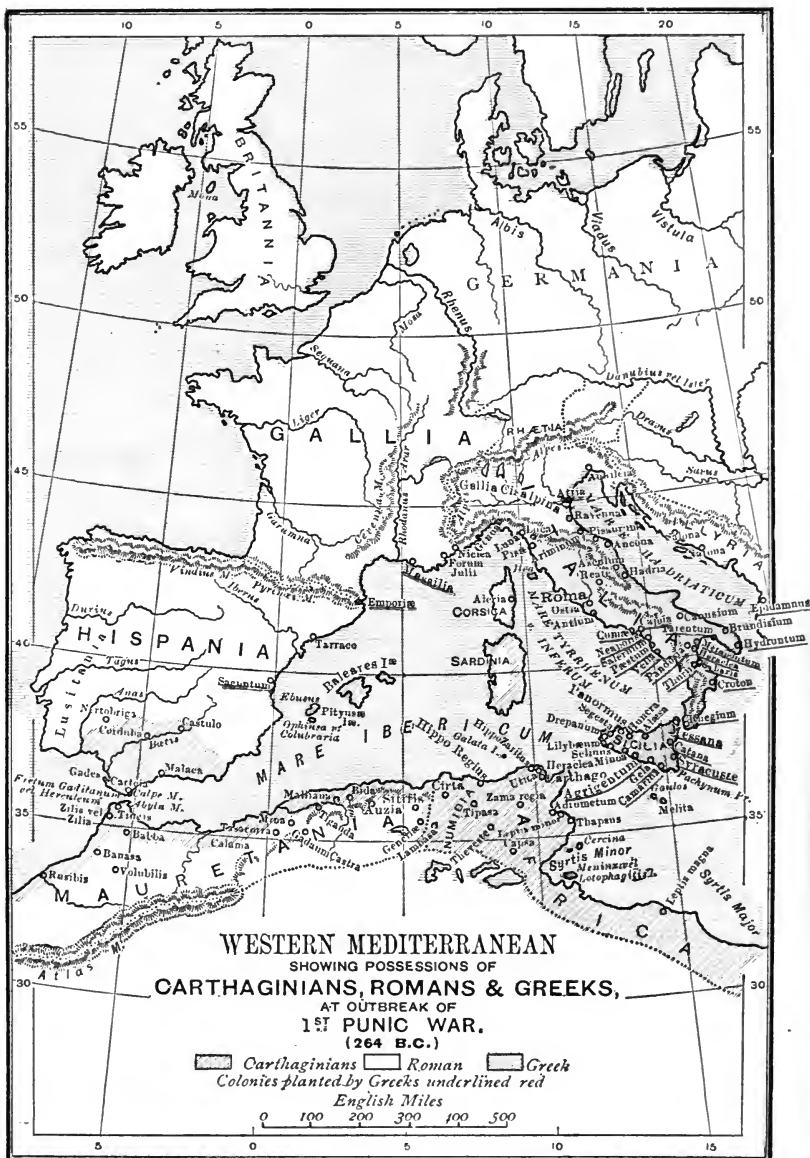
time before 735 B.C.; Naxos, the earliest Greek colony in Sicily, was settled from Chalcis, in 735 B.C., and Syracuse in the next year from Corinth; a number of colonies in Sicily and Italy followed in rapid succession, among which were Leontini and Katana, Megara and Messana, Agrigentum, Selinus and Himera. In southern Italy, which was so thoroughly colonised by the Greeks that it received the name of Magna Graecia ("Great Greece"), they founded Rhegium, on the Italian side of the Sicilian Straits, Tarentum, Sybaris, Croton and Locri. These cities soon became extraordinarily rich and prosperous; the country abounded in corn, wine, oil, flax, cattle, fish and timber, and a lucrative trade was carried on with the Asiatic Greeks. The inhabitants of Sybaris were so notorious for their luxury that the word Sybarite became and remains a by-word.

The chief centres of the trade between Greece, Italy, and Sicily were the island colony of Corcyra (Corfu), founded by the Corinthians at the same time as Syracuse and Epidamnus (Dyrrhachium, modern Durazzo). The Colony of Corcyra became one of the chief maritime states in Greece, and carried on an extensive commerce with the Illyrian and Dalmatian coasts, where its pottery was much prized.

In the western Mediterranean, outside Italy and Sicily, one distant colony was founded, which has a commercial history of more than two thousand years' duration. Massalia (Latin Massilia, the modern Marseilles) was founded on the south sea-coast of Gaul by the Phocæans in 597 B.C. The colonists of Massalia introduced the cultivation of the vine and olive, and extended the Greek language and civilisation among the Gauls, and founded other colonies on the coast of Spain. Their commerce was extensive, and their fleet so powerful that they were able to withstand their enemies, the Carthaginians.

One incident in the history of Massalia deserves mention as throwing light on the early history of Great Britain. The





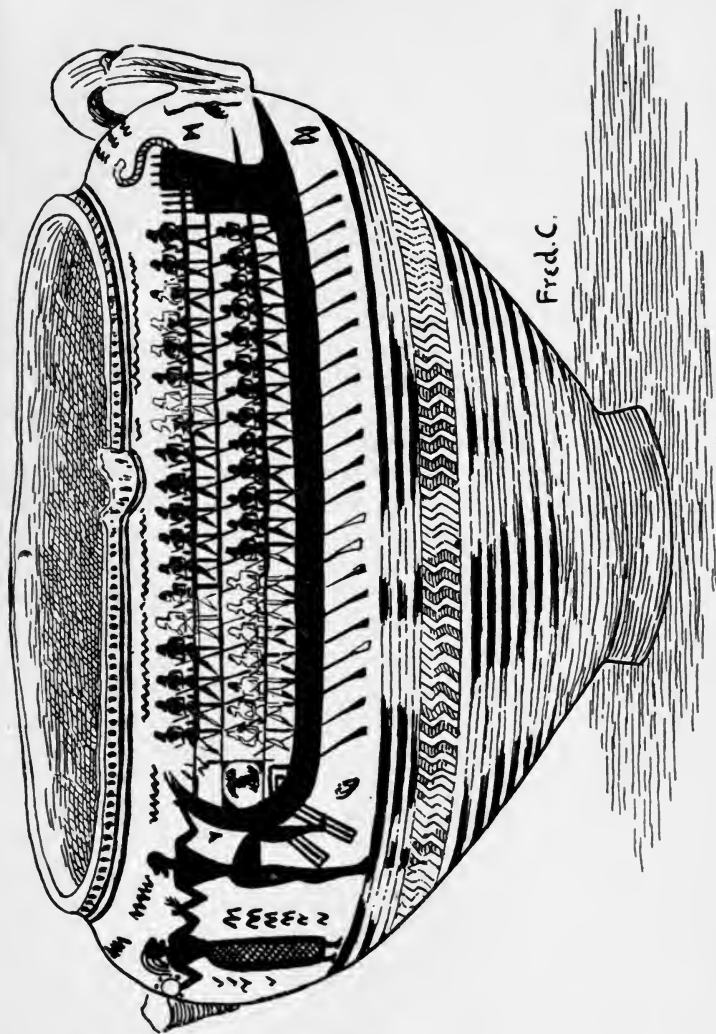


FIG. 14. GREEK VASE ON WHICH IS REPRESENTED A GALLEY WITH THE STEERSMAN GOING ON BOARD (ABOUT 800 B.C.).

Carthaginians, who succeeded to the possessions of the Phœnicians in Spain, jealously guarded the secrets of the seas west of the Straits of Gibraltar. Like the Spaniards in America in the 16th century, A.D., and the Dutch in the Spice Islands in the 17th, the Carthaginians tried to keep the Atlantic coasts, and the sources of their supply of tin as a preserve of their own. The captain of a Carthaginian ship of Gades, on his way to the tin islands, who was tracked by a Roman merchantman, led his enemy on to a shoal on which he ran and lost his own ship. The captain was saved on the floating wreck, and was rewarded by the Senate of Carthage with the price of the sacrificed cargo (Elton, *Origins of English History*, p. 13). It is stated that the Carthaginians threw into the sea every foreign mariner sailing towards Gades who fell into their hands. The merchants of Massalia, in the middle of the 4th century before Christ, made an attempt to solve the mystery hanging over the Atlantic coasts. Two articles of commerce, then much prized, were known to come from the north, tin and amber, the last of which for ages had come by a "sacred road" to the head of the Adriatic Sea, probably from the coasts of the Baltic, up the German rivers, and across the Alps. A committee of merchants of Massalia sent out two expeditions to pass through the Straits of Gibraltar. One went southward, and reached a river (probably the Niger) where crocodiles and hippopotami were seen in great abundance. The other expedition, under the command of Pytheas, an eminent mathematician, is said to have gone from Gades round Spain and Brittany, to Britain, to the Rhine, round Jutland, up the Norwegian coast, across the North Sea to the north of Scotland, and so back to Brittany and the mouth of the Garonne, where he found a route leading to Marseilles (Elton, p. 15). The travels of Pytheas are said to have had the result of opening the trade in tin and amber to the Greek merchants of Marseilles. The trade in these articles illustrates the commercial importance

of the river system of a country. Tin from Britain was brought across the English Channel to the coast of Gaul to the mouth of the Seine, the Garonne, or the Loire, and thence down the Rhone to Massalia.

In the eastern Mediterranean Greek colonies abounded on the northern coast of the *Ægean*, to which they were attracted by the mineral wealth of Thrace, particularly in the neighborhood of the river Strymon; the Greeks also settled on the Thracian Chersonese and on the shores of the Propontis (Sea of Marmora) and the Bosphorus. In the foundation of Byzantium (Constantinople) in B.C. 657 from Megara, the Greeks showed that genius in discerning sites favourable for commerce which also appeared in the foundation of Massalia and Syracuse. Byzantium, situated on the strait which separates Europe from Asia, has been at all times a city of great commercial importance. In Greek times its importance depended on its tunny-fishery, on its unequalled opportunities for maritime traffic, and on its command of the straits, which enabled it to levy toll on the corn ships which passed from the Euxine to the *Ægean* Sea. The countries bordering on the Euxine (Black Sea), in Greek times, as now, were great corn-growing countries; Athens depended almost entirely for its corn on the supply from Euxine. This corn-trade was tapped by the numerous Greek colonies that fringed the coast of the Euxine and the Crimean peninsula. Most of the Euxine colonies were from Miletus, the most important being Istria, Odessus (Odessa) founded about 600 or 560 B.C., Panticapaeum (Kertsch), Tanais at the mouth of the Don, Olbia at the confluence of the Bug and the Dnieper; these towns exported corn, slaves, and wool in exchange for Greek wines and cloth, Miletus, the mother-city of most of the Euxine colonies, being famous for its sheep, and the manufacture of fine cloths and carpets.

On the south and east of the Euxine the Greeks had settlements at Sinope, Trebizond (Trapezus), Phasis (Poti),

Dioskurias (Iskurieh), some of which places are even at the present day important commercial centres. In this quarter the Greeks probably tapped the commerce which came to the Euxine by caravan routes from the interior of Asia and the Persian Gulf. In the south of Asia Minor the Greeks encroached upon the Phœnicians by their settlements, which reached as far east as Tarsus in Cilicia, and by their colonies in Cyprus. With Egypt, as before mentioned, they carried on a considerable trade after that country had been opened to them by Psammetichus. To the west of Egypt on the African coast settlers from the island of Thera, in the *Ægean* Sea, founded the flourishing colonies of Cyrene (about 630 B.C.), Barca and Hesperides, in a fertile well-watered country, producing oil and wine, and having abundant pastures suited for cattle breeding. One of the most valuable products of this district was the plant, silphium, which only grew in the Cyrenaic regions, and was much prized on account of its use in cookery and in medicine. Cyrene also traded with the African interior and exported wool, sheep, horses, corn, oil, dates, and precious stones.

The Greek colonies, it will be seen, stretched from Spain on the west to the Euxine on the east, and were dotted over the chief countries of the Mediterranean. The colonies so founded were independent states, and owed to their mother-city certain customary marks of respect, but in all other respects were entirely free.

In Greece proper the two most important commercial states were Athens and Corinth. Athens was famous for its works of art, its pottery and vessels of bronze and its statues of marble and metal; these formed its chief articles of export. The silver mines of Laureion formed a source of considerable profit, and the Athenians were also engaged in mining adventures on the coast of Thrace. Athens imported carpets and woollen cloth from Miletus, wine from the Greek islands, corn, iron, brass and slaves, timber for ship-building,

salt-fish, honey, wax, tar, ship's rigging, leather and goat-skins from Thrace and the Euxine coasts.

Corinth owed its commercial importance to its position. Situated at the southern end of the isthmus which joins the Peloponnesus (Morea) to the east of Greece, it had access to two seas, on the east to the Ægean, and on the west to the Corinthian Gulf and the western Mediterranean. To save the dangerous passage round the south of Greece, cargoes were often unloaded on one side of the isthmus and re-shipped on the other side, or light ships could be taken across the isthmus by a kind of tramway which led from one sea to the other. Corinth was famous for its ship-building, the invention of the trireme, or ships with three banks of oars, being ascribed to the Corinthian Ameinocles (700 B.C.) ; it was also famous for its earthenware and for its manufacture of brass. Corinth fell short of Athens in the higher qualities of civilisation, but equalled it in wealth and prosperity.

The Greeks were the first people to check the advance of the aggressive Persian power which rose on the ruins of the Babylonian and Assyrian empires. It was their maritime skill which enabled them to defeat at the battle of Salamis the great naval expedition of Xerxes (480 B.C.) in which the Phœnicians, anxious to wreak their vengeance on their commercial rivals, the Greeks, played the part of willing tributaries of the Persians. The result of the Persian defeat was the expulsion of the Persians from the Ægean Sea and its coasts.

The leading part in the struggle that ended with the defeat of the Greeks was taken by Athens, who founded a great maritime confederacy (the confederacy of Delos) which embraced many of the leading commercial Greek states who in time became tributaries of Athens. The attempts to include in this confederacy Corcyra and Potidæa, the colonies of Corinth, and the expansion of the influence of Athens aroused the jealousy of its commercial rival, Corinth, and

the Peloponnesian war followed (431-404 B.C.), in which Athens after a fruitless attempt to add the Sicilian colonies to its empire, and so gain a corn supply which should be completely under its own control, lost the command of the sea, and its power was destroyed. The weakness of Athens lay in the fact that it was entirely dependent for its corn supply on the countries of the Euxine, and the loss of the command of the sea meant starvation.

The development of Greek maritime enterprise met with a fatal check on the fall of the Athenian power. The supremacy passed to the hands of Sparta, which despised and discouraged trade, and after the successive rise and fall of other states struggling for the supremacy, the Greek states lost their independence and became subject to the Macedonian power. The overthrow of the Persian empire by the Macedonian king, Alexander the Great (331 B.C.), and his conquests reaching as far as India, opened up the whole of western Asia to Greek influence, and thus Greek commerce, language and civilisation spread over the whole of western Asia. But Greece itself suffered, as, under Alexander and his successors, new cities were formed, such as Seleucia and Antioch in Asia, and Alexandria in Egypt, which drew away much of the Greek trade. Asia Minor, Syria, and Egypt flourished in consequence, while the cities of the mainland of Greece decayed.

Greek Navigation.

The Greeks improved on the Phœnician bireme by the invention of the trireme, or ship with three banks of oars, which has been ascribed to the Corinthians (700 B.C.). The trireme was chiefly used as a ship of war. Merchant vessels were much bulkier, had round bottoms, and, while using rowers, were chiefly propelled by sails. Ships with four banks of oars (quadriremes) were invented by the Carthaginians, and these were followed by ships with five and six banks; ships with twelve, thirty, and even forty banks of

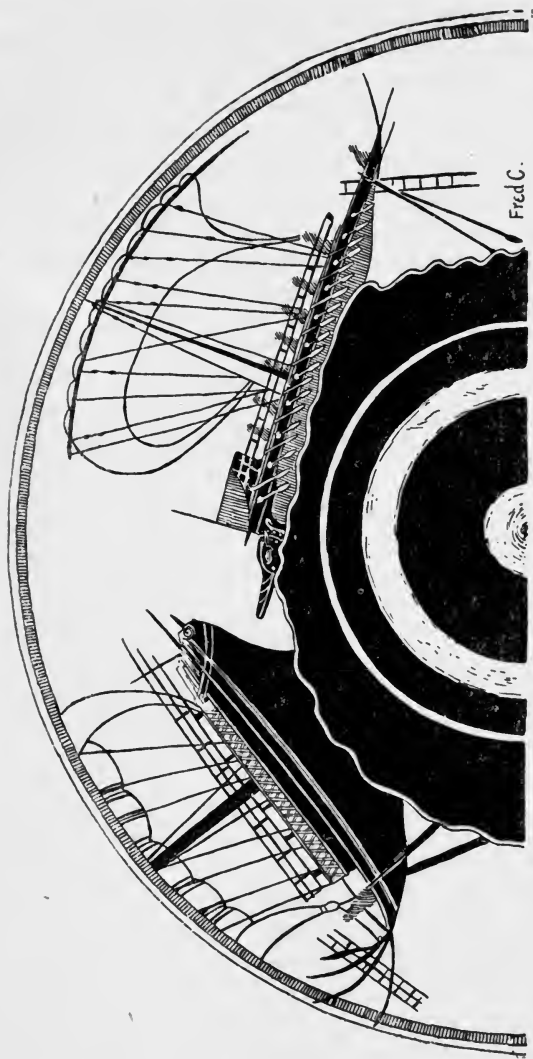


FIG. 15 ATHENIAN VASE (ABOUT 500 B.C.) REPRESENTING A GREEK WAR-GALLEY
(TO THE RIGHT) AND A MERCHANT-SHIP (TO THE LEFT).

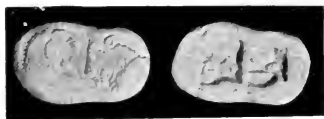
oars were also built after the time of Alexander the Great, but "appear to have been mere curiosities, and did not come into common use." (Smith's Dict. of Antiq., article *Navis*). Some of the Greek ships had two, and even three masts; the sails were square, and of the kind known as lug-sails, and were raised and lowered by ropes, not furled. The Greeks were expert navigators, and the maritime skill of the Athenians in particular showed itself in the naval battles of the Peloponnesian war, many of which the Athenians won by sheer dexterity in manœuvring their vessels.



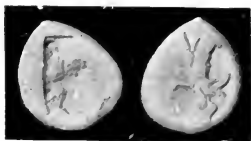
FIG. 16. PICTURE OF A GREEK BALANCE.

Greek Money.

The Greeks used chiefly silver and copper or bronze coins. The chief coins were the silver *drachma*, worth about 9½d., and the *didrachma* or double, and *tetradrachma* or quadruple drachma (see plate, Lydian, Phœnician, and Greek Coins, No. 5). Persian gold coins, called *darics*, were in circulation in Greece (see plate, Lydian, Phœnician, and Greek Coins, No. 2), but no gold coins were struck in Greece until after "Philippi" were coined in Macedonia (see plate, Lydian, Phœnician, and Greek Coins, No. 6) about 250 B.C. (H. de B. Gibbins, *History of Commerce in Europe*, 26). The Greek coins are unrivalled for the beauty of their workmanship.



No. 1.—*Lydian Gold Coin (about 568-554 B.C.).*



No. 2.—*Persian Gold Daric (521-485 B.C.).*



No. 3.—*Coin of Tyre (about 400 B.C.).*



No. 4.—*Coin of Sidon with figure of ship (374-362 B.C.).*



No. 5.—*Athenian Tetradrachm (silver).*



No. 6.—*Gold Stater or Philip II. of Macedon.*

LYDIAN, PHENICIAN, AND GREEK COINS.



No. 1.—Roman As (about 400 B.C.), with figure of Janus and prow of a ship (copper).



No. 2.—Roman Denarius about 260 B.C. (silver).



No. 3.—Roman Aureus of Julius Cæsar 46 B.C. (gold).



No. 4.—Roman Sestertius of the Emperor Nero (bronze).

ROMAN COINS.

Commercial Relations Between Different States.

As the Greek states carried on a vigorous trade with one another, and with other communities, one state very often had interests in another state, which required the care of someone permanently resident in the other state. To provide for needs of this kind, a Greek state retained in other states the services of a proxenus, a prominent citizen, who looked gratuitously after the interests of the state that retained him. The office was something analogous to that of a consul, but was often hereditary in a particular family. The principal duties of a proxenus were to receive ambassadors, to act as the patron of strangers from the state which he represented, and to mediate between the two states if differences arose.

If a stranger died in a foreign Greek state, the proxenus of his country took charge of the property of the deceased. (Smith's Dict. of Antiq. Art. Hospitium.)

Banking, etc.

The business of banking was carried on at Athens and other Greek cities ; the bankers had in the market-place stands or tables (*trapezæ*) whence they were called *trapezitæ*. Their chief occupation was changing money, but they also received money on deposit and lent it out again ; they used bills of exchange or written orders for the transmission of payments from one place to another. They also lent money on bottomry, *i.e.* on the security of a ship and cargo, the money being repayable only if the ship safely accomplished its voyage. The rate of interest was very high in the Greek states ; 36 per cent. was the usual rate for money lent on bottomry, a very risky security ; in other transactions 18 per cent. was the usual rate and 10 per cent. the lowest. The high rate of interest is owing to the low state of credit which is attributed to the insecurity of Greek politics, the sub-division of the country into a number of petty states, the unfavourable attitude of Courts of law to money-lenders and a low state of commercial morality. (Smith, Dict. of Antiq. Art. *Fenus*).

CHAPTER IV.

Rome (founded 753 B.C.).

The Romans, who ultimately established an empire comprising all the Mediterranean nations and most of the civilized peoples of antiquity, were not a commercial people. Their greatness was founded, not on commerce, but on war and agriculture. Their city, Rome, was on a site ill-suited for trade. The Romans were a nation of farmers, and for a long time produced enough articles of food and clothing to supply their own wants. They had at first few articles of export; copper they imported from Etruria in exchange for cattle and slaves, and articles of luxury from the Greek cities of southern Italy and from Sicily. The Romans long adhered to the habits of simplicity and frugality which are characteristic of an agricultural people. Luxury was frowned upon and repressed by legislation and by the supervision of magistrates. The amount of silver plate which a Roman of the highest class could keep in his house was strictly defined, and the wearing of silken and such like goods prohibited.

The object of the Romans seems to have been first to make themselves secure from the numerous enemies that lived around them, then to conquer them one by one, and afterwards to acquire the supremacy in Italy. As one country after another in Italy was conquered, the Romans strengthened their hold on it by the planting of colonies, which were not, like the Greek colonies, independent states, but military stations occupied by soldiers, who tilled the soil, and fought when called upon. As the Romans added to their conquests they built roads, the best that the world has seen, all communicating with Rome, and made with the military object of facilitating the conveyance of troops, but no doubt having an indirect result in increasing facilities for commerce.

Rome, having acquired the supremacy in Italy before the middle of the 3rd century B.C., engaged in war with

Carthage for the possession of Sicily, and after the three Punic wars, which lasted with intervals of peace for more than one hundred years (264-146 B.C.), crushed and destroyed her rival. The energy and determination of the Roman character are well seen in the course of the first Punic War, in which the Romans, awkward and unskilful seamen as they were, learnt how to defeat the maritime power of Carthage on the Carthaginians' own element, the sea. The conquest of Carthage led to the acquisition of part of Spain (205 B.C.) and the other dominions of Carthage (146 B.C.), and was rapidly followed by the subjugation of the Macedonian kingdom and Greece (146 B.C.), of Asia Minor and Syria (129-7 B.C.), of Gaul (54 B.C.), and Egypt (30 B.C.). The Roman empire, as settled and organized by Augustus, who became Emperor about 31 B.C., included all the Mediterranean countries, and was bounded on the west by the Atlantic Ocean, on the north by the Rhine, the Danube, and the Black Sea, on the east by the Caucasus and Armenian Mountains and the Syrian Desert, and on the south by the desert of Sahara (see Map, p. 41). Only two additions were made to the empire so settled: Britain added in 44 A.D., and Dacia added in 106 A.D.

The acquisition of an enormous empire such as that just described made Rome the centre into which most of the wealth of the world flowed. After the conquest of Sicily (247 B.C.) the countries that were added to the direct dominion of Rome, which were called provinces, paid tribute and certain tolls and taxes. The tribute and taxes were paid to Rome in the form of imports, and the flow of these imports to Rome produced of course a steady stream of traffic which made Rome a great commercial centre. The ports in Italy, to which the imports usually came, were Ostia and Puteoli on the west coast for the eastern trade, Ariminum on the east coast for the trade with Gaul, and Brundisium on the south coast for the trade with Greece and Asia.

The senators, the ruling class at Rome, were prohibited by law (*lex Claudia*) from engaging in trade, and from owning ships of more than a certain size; but the law was to a great extent evaded by the employment of slaves to trade in the place of their masters. Many of the senators owned enormous landed estates, and some of them carried on the business of money-lending; and the debts owing to them were paid by means of the imports from the provinces, just as at the present day the surplus of imports over exports into Great Britain represents interest on British capital invested in foreign countries. As the wealth of the world began to flow towards Rome, there arose a capitalist class called the *equites*, who were excluded by law from the senate, but who formed large joint-stock companies for the purpose of collecting the provincial tribute and taxes which were farmed out by the state.

As the wealth of Rome increased, its population grew, and supplies of corn from abroad became more and more necessary. From the middle of the 2nd century B.C. onwards, corn was sold at a low price, or distributed gratuitously by the state to the Roman populace. Enormous quantities of corn were imported, first from Sicily and afterwards from Egypt and other parts of Africa, from Sardinia and Gaul. This distribution of corn led to the ruin of Italian agriculture, as the market price of corn fell so low that Italian corn-growing became unproductive. The result was that huge pastures, which could be looked after by a few mounted slaves, took the place of arable land; the number of tillers of the soil was decreased, and the small farmers, who had been the back-bone of the Roman nation, flocked to Rome to swell the crowd of idlers who were fed, and even amused, at the public expense. Italy suffered, but the provinces gained. The security, peace, good government, admirable organisation, and means of communication which the Roman Empire brought to the provinces were paid for by tribute and taxes,

but the price was not a dear one except in the later days of the empire, when the burden of organisation was so heavy that the weight of taxation became almost insupportable.

The Romans, though not at first commercially inclined, were yet admirable men of business. They showed care and skill in the keeping of accounts. They presented to the world a pattern of order, system, organisation, both in smaller matters, such as the management of landed estates and in the more important matters of war and government. They



FIG. 17. ROMAN BRIDGE AT ARIMINUM.

showed the real imperial instinct by the attention that they gave to such matters as drainage, water supply, road and bridge making, irrigation, and the improvement of harbours. The nature of the commerce which centred in Rome facilitated the development there of businesses, such as banking and money-lending. Cicero, speaking of the Roman province of Gallia Narbonensis, says that not "a single sesterce is in circulation that is not entered in Roman account books." We owe to the Romans, among other things, the Roman numeral signs, the names of the months, and the Julian calendar, so called because settled by Julius Cæsar (B.C. 45); this calendar as corrected by Pope Gregory XIII. in 1582, is now used by all the nations of Europe except Russia, which still adheres to the older Julian style. Most of the nations of Europe except England have adopted the Roman law as the basis of their legal system.

The provinces of the Roman Empire divide themselves into two halves, those west of Italy, where the Latin language and

modes of thought prevailed ; and those east of Italy, where Greek language and civilisation were too strong for the Latin element to make headway against. These two divisions correspond to the eastern and western empires into which



FIG. 18. ROMAN MERCHANT-SHIP.

the Roman Empire was divided in 364 A.D., and to the Greek and Latin Churches, into which the Christian Church, which became the State religion of the Roman Empire about 312 A.D., was divided. The western provinces are the more vigorous and healthy of the two divisions, and out of them grew

the modern states of France (Gaul), Spain (Hispania), and Portugal (Lusitania). Spain was the richest of the western provinces, and supplied Rome with iron, copper, silver and gold, and corn, wine, oil, wool and horses. Gaul produced and exported corn, cattle and horses, and manufactured arms, woollen and linen fabrics. Britain exported tin, lead, cattle, skins, wool, corn, slaves, pearls, oysters, jet, and dogs.

On the south of the Mediterranean, Numidia sent to Rome corn; the district of Cyrene, silphium; Egypt, paper, corn, and the products of the East, gums and spices, silks, ivory, costly woods, precious stones, tortoise-shell, silk and cotton fabrics, slaves, unguents, rare birds and animals which came to Alexandria by the caravan route from Petra. From Greece and the Greek islands came wine, marble and Corinthian bronze; but the Greek cities, as before stated, were decaying, and the most flourishing provinces of the East were Asia (the name given to the districts of Mysia, Lydia, Caria and Phrygia), Bithynia and Syria. The exports from these districts were cloths and carpets, bronzes, gold and silver work, pottery, wines, purple and cedar-wood, and the products of the East, silk and precious stones from China

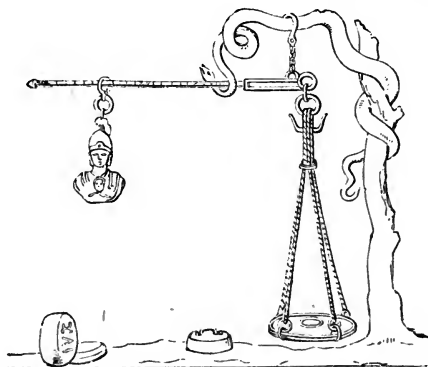


FIG. 19. PICTURE OF ROMAN STEELYARD.





and India, which were brought either to the Euxine ports or to the Persian Gulf, and thence to Ephesus. The products of the nations lying to the north of the Black Sea, consisting of wool, fur and slaves, were brought to the Greek cities on the Euxine and then transported to Rome. Never in the whole course of the world's history has there been such a gravitation of all the commerce of the civilised and uncivilised world to one centre as in the days of Imperial Rome.

Slavery.

One fact that it is necessary to bear in mind in reading of the nations of antiquity is that the social system was based on slavery. As the Roman Empire grew, wealth and luxury increased, free labour declined, and nearly all handiwork was performed by slaves. Slavery is of two kinds, predial and domestic. Predial, or plantation slavery, is the name given to the system under which agricultural labour is done by gangs of slaves working under foremen. This system prevailed in Sicily and in southern Italy, where the slaves were locked up at night in workhouses or prisons, and by day led or driven to work. This system is one that gives rise to the greatest abuses, and slave revolts and wars were not of infrequent occurrence during the latter days of the Roman republic.

The other system—domestic slavery—is one under which the slaves do domestic and other work, and form part of the household. Slaves in this position in Rome were generally well treated, and became the friends and confidants of their masters. They were often employed to trade for their masters, and received a portion of their gains. They often were emancipated by their masters, or bought their own freedom, and on being free they became the dependents (freedmen) of their former masters. During the Roman Empire the practice of emancipating slaves became extremely common, and to check it a tax was imposed.

One result of the slave systems of antiquity was that manual labour and the occupations that slaves generally followed were regarded with great contempt. Indeed, throughout the time before the fall of the Roman Empire, and even later, commercial and industrial pursuits were regarded, except perhaps in some of the Greek states, as humiliating, and military and political occupations were alone regarded as conferring distinction. Under the system of slavery, which affords little incentive to exertion or enterprise, the work done is often of a very inferior kind, and under such a system industrial inventions and improvements are rarely made.

Coinage.

The earliest Roman coin was the copper *as* (see plate, Roman Coins, No. 1), which varied in value but ultimately was worth about three farthings. The silver *denarius* (= 10 asses), of about the same value as the Greek drachma (about $8\frac{1}{2}$ d.), was first coined in the 3rd century B.C. (see plate, Roman Coins, No. 2). The Romans also used the *sestertius* (= $2\frac{1}{2}$ asses) of silver and copper (see plate, Roman Coins, Nos. 2 and 4). The standard gold coin of Rome was the *aureus* (see plate, Roman Coins, No. 3), first coined in 207 B.C., and worth a little over £1.

Banking, etc.

The Romans adopted from the Greeks the system of bills of exchange. The bankers were an important class in Rome; they had shops (*tabernae*) in the forum and exchanged, lent and borrowed money. Their books were kept with great accuracy and were often appealed to as evidence in courts of law; it is said that the Romans were acquainted with book-keeping by double entry. The rate of interest was towards the close of the republic fixed at 12 per cent. and a higher rate could not be legally recovered except in the case of bottomry; the rate under the empire was reduced to 6 per cent., a fact which shows that property was more secure and capital more abundant under the empire than under the republic.

CHAPTER V.

The Middle Ages—The Fall of the Roman Empire.

A great break in the history of civilisation, and consequently of commerce, occurs when the Roman Empire was over-run and overthrown by the barbarian tribes, whose invasion had long been threatening, but whose settlements within the limits of the empire begin in 376 A.D. The Empire of the West came to an end in 476 A.D. The Eastern Empire lingered on, and was not finally destroyed till Constantinople was taken by the Ottoman Turks in 1453 A.D. The barbarian invasions, settlements, and migrations in the west of Europe last from the 5th to the 10th century A.D. With the 5th century begins the period known as the Middle Ages, which last till the close of the 15th century, the time of the revival of learning. The early part of the Middle Ages, to the end of the 10th century, is sometimes called the Dark Ages, a term expressive of the ignorance, unrest, and disorder that prevailed till the newcomers had settled down.

The rise of the aggressive and militant Mohammedan religion in the 7th century A.D. led to the overthrow of Christianity in Asia and Africa, and, under the Caliphs or successors of Mohammed (who died 632 A.D.) a Mohammedan empire was founded, which reached from Persia to Spain. The Saracens over-ran the South of Spain, reduced Sicily, plundered Italy, and were with difficulty repelled from France. The southern part of Spain remained in the hands of the Mohammedans till the close of the 15th century A.D. Under the empire of the Caliphs, the chief seats of which were Bagdad and Cordova, learning was fostered, and some sciences took their rise. The Greek classics were translated into Arabic, and became known to Western Europe in some cases only through translations from Arabic. Astronomy, arithmetic, algebra, chemistry, and medicine were studied by the

Arabs to whom we owe the Arabic numerals, the alembic, the distinction between acids and alkalis; the extent of our debt is shown by the number of scientific words which we have borrowed from Arabic, *e.g.*, almanac, algebra, alkali, alchemy, alembic.

Outside the Moorish Empire and the degenerate and decaying Eastern Empire all traces of civilization seemed to have disappeared from the West of Europe. The Moorish empires of Bagdad and Cordova were alone remarkable for intellectual and commercial activity. For the purposes of commercial history, as regards the greater part of Europe, this period is a blank. Agriculture and trade seemed to go backward, and to exist only, for the sake of supplying the necessaries of life. Except among the Moors and in the Eastern Empire, there was no commerce of importance, because there was no security for life or property. Out of this chaos, in process of time, the modern nations of Europe began to take their rise, and much of the civilisation and influence of Rome re-appears. From the Franks, who settled in Gaul, united with the old Gallic and Roman population, arose the nation of France, the language of which is directly derived from the language of the Roman soldiers who settled in Gaul. The Visigoths, who settled in Spain, also abandoned their own language and adopted that of the conquered race. All the conquering races who invaded from the North in process of time adopted the Christian religion, which had been, from the time of Constantine, the state religion of the Roman Empire, and the influence of which helped to retain or revive the civilization of Rome. So with law. Nearly all the nations of modern Europe have adopted, and are governed by, the "civil" or Roman law. England is a signal exception; but the impression that Rome made on Britain was not very deep. Britain was the first of the provinces to be given up, and the English tribes, who began to invade and settle in Britain in the 5th century A.D. retained their own language

and customs, and effaced the traces of Roman influences and of the Christian religion, which was only re-introduced into England at the close of the 6th century.

A remarkable instance of the deep impression which the Roman Empire had made on Europe is to be seen in the spiritual supremacy of the Pope or Bishop of Rome, and in the revival of the Roman Empire under the Frankish King, Charles the Great. The Papacy, which has been called the "Ghost of the Roman Empire," owes its supremacy to the fact that the world had been so long accustomed to look up to Rome as its head that, even when the Empire was destroyed, the habit remained, and the Bishop of Rome, or Pope, as he was afterwards called, came to be regarded as the superior of other bishops and the chief of the Latin Church, because Rome had been regarded as the head of the world and the chief city of the West. The revival of the Roman Empire when Charles the Great was crowned Emperor in Rome by the Pope, 800 A.D., is another sign that shows how difficult it was for Europe of that time to get the supremacy of Rome out of its head.

Two agencies in particular helped to develop order out of chaos in Europe of the Dark Ages. The first was the rise of feudalism, the second the influence of the Christian Church.

Feudalism, which was a rude attempt of society to restore order, consisted of two elements: the holding of land by a vassal of a lord on the condition of rendering military and other services, and the personal tie of homage that connected the vassal with the lord. All the western nations of Europe became feudalised, and traces of the system still exist in the land laws of England and other states. As the power of the rulers of the different states that were founded on the ruins of the Roman Empire was often too weak to afford protection to their subjects, all land-owners, in process of time, came to hold their land of a lord who protected them in their possessions, and to whom they took an oath of fidelity, and to whom

they were bound to render military or other services. The lord in his turn held of some superior lord or of the king or head of the state, who was lord paramount; the lowest class in the so-called system were villeins, or serfs, who were bound to the soil and could not leave their holding, and who tilled the land and worked for their lord. This system led to the formation of a number of groups of cultivators, who lived together in village communities or manors, many of which ultimately grew into towns.

The influence of the Christian Church was a humanising one, and tended to bind together all classes of the community. It encouraged by its teaching the emancipation of slaves, and it was, in part, owing to its influence that slavery, as distinct from serfdom or villenage, died out in Europe. The practice of pilgrimages to sacred shrines, and particularly to the Holy Land, promoted intercourse between different countries, and was not without a commercial side. Fairs were often held at some frequented shrine, and the silks, jewels, spices, paper and other products of the East were brought into Europe by pilgrims returning from Palestine. The interruption of the pilgrimages to the Holy Land in the 11th century by the Mohammedan Turks, who had gained possession of Palestine, led to the Crusades (1095-1270 A.D.), the Holy Wars undertaken by armies from the different Christian nations of Europe at the instance of the Popes for the sake of rescuing Jerusalem from the hands of the Mohammedans. The Crusades affected European commerce by leading to greater intercourse between the East and West, and to the introduction into Europe of many of the products of the East. Many of the towns of England owe their charters to the ardour of Crusading lords, who granted charters and sold their feudal and manorial rights to defray the expenses of the journey to the Holy Land. The Crusades also greatly increased the prosperity of the Italian cities, such

as Pisa, Genoa and Venice, whose fleets were used for the transport of the Crusaders.

Italian Cities.

The cities of Italy were the first to rise to commercial importance after the fall of the Roman Empire, and up to the end of the 15th century they had a monopoly of the trade of the Mediterranean Sea, which in the Middle Ages, as in antiquity, was the centre of European commerce. The chief commercial cities of the Middle Ages were the republics of Amalfi, Pisa, Genoa, Venice, Florence, and Milan, most of which were cities that had existed before the fall of the Roman Empire.

Pisa.

Pisa was one of the first Italian cities to possess a large fleet, with which she conquered Sardinia and Elba. She gained great wealth through the Crusades, as one of the states whose armaments conveyed the Crusaders to Palestine. She had settlements in Syria, particularly in Acre, and in her ships the products of the East were brought to Europe. Her naval power was destroyed by her commercial rival, Genoa, in a long war which ended in 1284, and she ultimately became subject to Florence.

Genoa.

Genoa had a much longer period of prosperity. It benefited greatly by the Crusades, and was granted many commercial privileges in the parts of Syria that were conquered by the Crusaders, and carried on a profitable trade with Syria, Asia Minor and Greece. In reward for its assistance rendered to the Eastern Emperors in the recovery of their empire (1261), which had been overthrown by a combination of the French and the Venetians (1204), the Genoese received a grant of Pera and Galata, suburbs of Constantinople, as an exclusive settlement, where they established a colony, ruled

over by their own magistrates. Hence they extended their commerce to the Black Sea, and established factories or settlements at Kaffa in the Crimea, and at Trebizond, Sinope, and Sukhim-Kale in the Black Sea. Genoese ships in 1294 were navigating the Caspian Sea. The Genoese also had settlements at Beyrout and Damascus in Syria, Alexandria

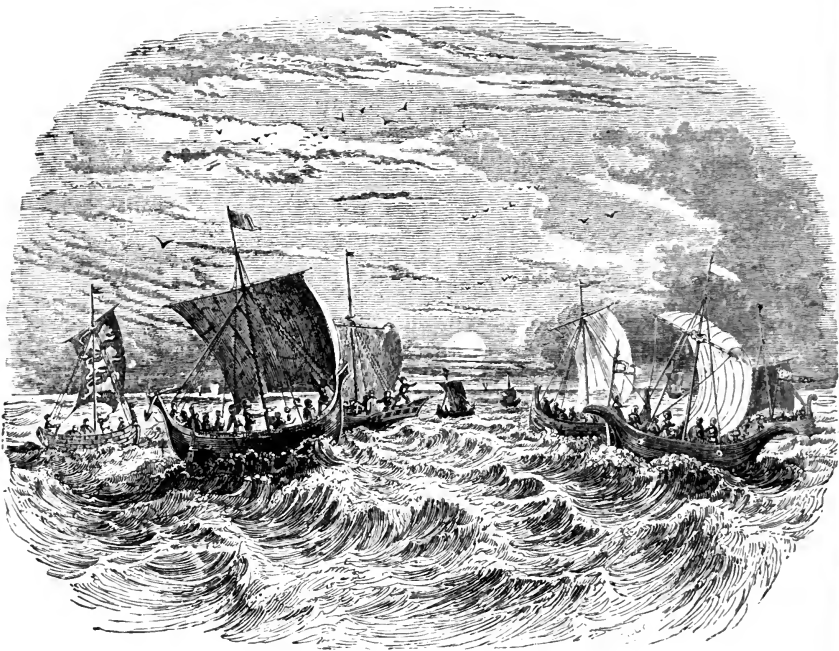


FIG. 20. SHIPS OF THE 12TH CENTURY.

in Egypt, and Tabriz in Persia. Genoese merchants were trading in China and India in the fourteenth century. Regular voyages by sea between Genoa and Flanders were made from 1309 onwards. Intimate commercial relations were established between England and Genoa, which brought to England alum and woad and other materials used in the manufacture of cloth, and purchased wool and other English products. The Genoese were famous for their maritime skill, and

produced some most distinguished seamen. Genoese seamen played a large part in the founding of the Portuguese navy (1367). Columbus, the discoverer of America in the 15th century, was a native of Genoa. The Genoese were also remarkable for their financial skill, and a public bank—the bank of St. George—was established in Genoa in 1407 for the purpose of managing loans to the state, on a principle not unlike that of the Bank of England, which was not established till nearly three centuries later. Internal dissensions and wars with Venice weakened the power of Genoa, and in 1396 it surrendered its independence to France. Its Black Sea commerce was destroyed by the conquest of Kaffa by the Turks in 1476, and like the other Italian cities its prosperity suffered, from the diversion of Eastern traffic from the Mediterranean, after the establishment of the sea route to India in the 16th century.

Venice.

Venice was the greatest and most permanently prosperous of all the Italian cities. At first its commerce was limited to trade in salt and fish, but it gradually extended its traffic down the Adriatic and opened up commercial relations with Greece and the Levant. The Crusades benefited Venice more than any other city. The taking of Constantinople by the Crusaders in 1204 was an enterprise in which the Venetians took an important part, and three-eighths of the city and of the provinces were allotted to them as their share of the spoil; they also obtained possession of the Ionian islands, of Candia, and other settlements in the Greek archipelago, and established a factory for the Black Sea trade at Tana, at the mouth of the river Don. The greater part of the eastern trade was in the hands of the Venetians, who cultivated friendly relations with the Mohammedan rulers of Syria and Egypt, and had settlements at Aleppo, Constantinople, Trebizond, Rhodes, Beyrout, Alexandria, and Cairo. Venice was the centre of the trade in sugar, which became known to Western Europe in the course of the Crusades.

One Venetian merchant in 1319 exported 100,000 lbs. of sugar to London in exchange for wool. Sugar and other products of the East were distributed over Europe by Venetian fleets of galleys, one of which visited England every year, from 1317 to the middle of the 16th century. A considerable overland trade with Germany and the North of Europe was also carried on by Venetian and German merchants by way of the Brenner pass over the Alps and of the Rhine. Besides carrying on the greater part of the carrying trade of the world, the Venetians were famous for their manufactures, particularly of silken and woollen goods, glass and armour. The Venetians, like other Italian cities, developed the business of banking. The Bank of Venice (1171) was one of the first European banks, and hotels are said to have been first set up in Venice (1319), for the accommodation of the numerous merchants that resorted there for trade. Venetian prosperity began to decline in the 15th century, and the diversion of Eastern commerce, to the route round the Cape of Good Hope, caused it to lose its most lucrative trade.

Florence

The commercial prosperity of Florence was based partly on maritime trade and still more on manufactures and banking. In the 14th century Florentine merchants were engaged in Levantine and Black Sea trade and had a settlement at Alexandria and banks at Alexandria and Damascus. Its chief manufactures were of woollen and silk fabrics, goldsmiths' work and jewellery. The Florentines bought large quantities of wool from England, especially from the great monastic houses, of whom the Cistercians were the chief. Florentine merchants had their agents in England, who bought this wool, and shipped it at Boston and Lynn for Florence. Florentines farmed the English customs, and were appointed by English kings to superintend the coinage and exchange of money. The bankers of Florence were the great money lenders of the Middle Ages ; the most celebrated were the Bardi and the Peruzzi, who lent enormous sums of money

to Edward III. and other European kings, and the Medici, the family which obtained the supremacy in Florence. Pegolotti, a merchant in the employ of the Bardi, wrote in the middle of the 14th century a merchant's handbook, giving an account of the chief markets of the time and of the Asiatic trade routes. The greatness of Florence did not long survive the loss of its political liberties (1530).

Milan

Milan, the chief of the Lombard cities, was an inland town famous for its manufactures of armour, wool and silk.

Other Mediterranean cities, besides the Italian, partook of the commercial prosperity which arose from the concentration of traffic in the inland sea. Marseilles (the Greek Massalia), as the outlet towards which most of the commerce of France converged, renewed its old prosperity. Marseilles traders trafficked in every part of the Mediterranean and had a settlement at Alexandria in the 14th century. In Spain, the cities of Catalonia, the chief of which was Barcelona, were among the chief maritime powers from the 13th to the 15th century. The vessels of Barcelona traded not only to every part of the Mediterranean, but also to the English Channel. The earliest bank of deposit, for the accommodation of merchants, is said to have been one established at Barcelona in 1407. The earliest laws relating to marine insurance are those of Barcelona in 1433 (Hallam, *Middle Ages*, i., 340). From Barcelona is said to have emanated a celebrated code of maritime laws, known as *Il Consolato del Mare*, which was recognised as binding by most of the Mediterranean countries. The code, besides containing a number of mercantile regulations, defined the rights of neutral and belligerent vessels in time of war, and laid the basis of international law (Hallam, *Middle Ages*, i., 333).

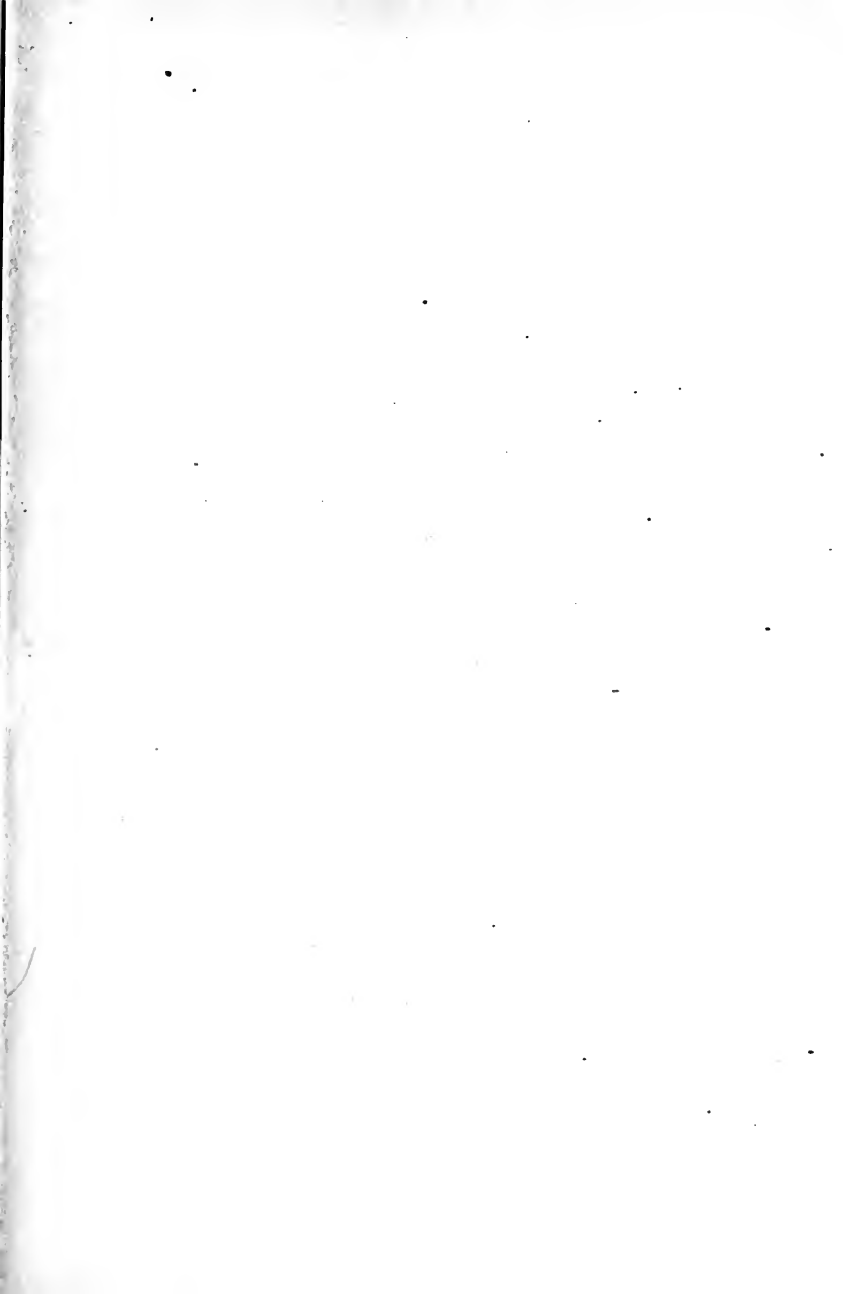
To the Italian cities Europe owes the invention of book-keeping by double entry, the first treatise on which is said to have been the work of Lucas di Borgo, published at Venice in 1495, and the introduction of bills of exchange, which we

owe to the Lombard merchants. To Italy and Catalonia together are to be traced the beginnings of modern banking and marine insurance. Of the origin of the most important invention of the Middle Ages, the mariner's compass, which made oceanic commerce possible, we know but little. Both the French and the Italians lay claim to its discovery. The Greeks and the Romans knew that the lode-stone attracted iron. The Chinese in the 2nd century A.D. had learnt that steel or hardened iron, rubbed with the lode-stone, pointed towards the north. The use by sailors of a needle mounted on a pivot and pointing towards the north is referred to by Alexander Neckam, an Englishman who was professor in the University of Paris (1180-90) and by Guyot de Provins, a satirist of Languedoc (1203-08), Roger Bacon (1258), was acquainted with the magnetic needle and its use by sailors and there are several references to it by writers of the 13th century (Beazley, "Dawn of Modern Geography", 1260-1420, 508).

The industry of paper-making was brought to great perfection by the Italians. The making of paper from cotton, unknown to the European nations of antiquity, was known to the Chinese, and was introduced into the West by the Arabs who became acquainted with this invention on their capturing Samarcand in 704 A.D. The Arabs brought it to Spain and Sicily; it was made in Spain at Valencia and Toledo, and introduced into Italy from Sicily. The art of making paper from linen rags became known in the course of the 14th century. Paper was made in Italy at Fabriano, Padua, Trevisa, Florence, Bologna, Parma, **Milan** and Venice. On the invention of printing, the Italian presses of Venice and Florence became famous for the exquisite workmanship of their books.

Northern and Central Europe.

To the north of the Alps the most important commercial centres in the Middle Ages were the Hanse, the Flemish and German towns.









The Hanse Towns.

In the year 1241 an alliance for mutual protection was formed between Hamburg and Lübeck, and the alliance was joined by many of the towns on the Baltic coast and in North Germany. The name of the Hanseatic League (from Hansa, a company or gild) was given to these allied towns, who joined together for the purpose of protecting their trade from pirates and robbers, and who ultimately acquired a monopoly of the carrying trade of the North of Europe. The head of the League was Lübeck, and its most important members were Hamburg, Bremen, Brunswick, Cologne, and Dantzic. The number of the members of the League varied; at its prime the League had 86 members.¹ It became very prosperous and powerful, gaining complete command of the Baltic trade, and having commercial connections which

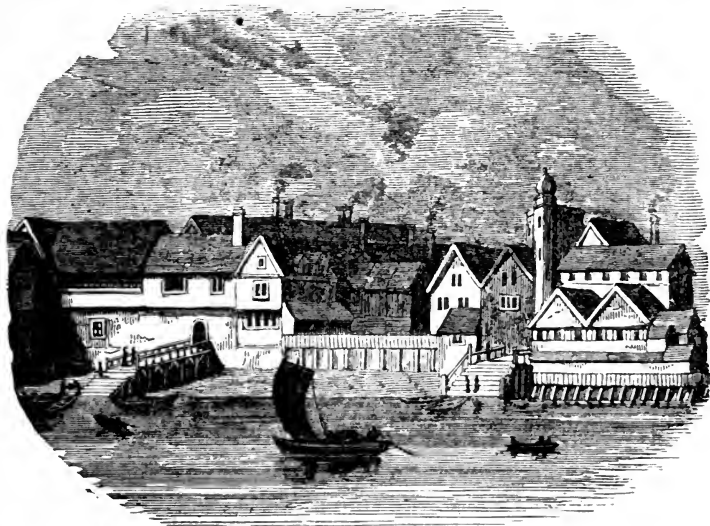


FIG. 21. THE LONDON STEELYARD.

¹ No city could be admitted a member of the League unless it was situated on the sea or a navigable river and kept the keys of its own gates.

reached from Russia to England. The Hanse merchants had a number of factories and settlements in foreign parts, the most important of which were at London, Bruges, Bergen, and Novgorod.

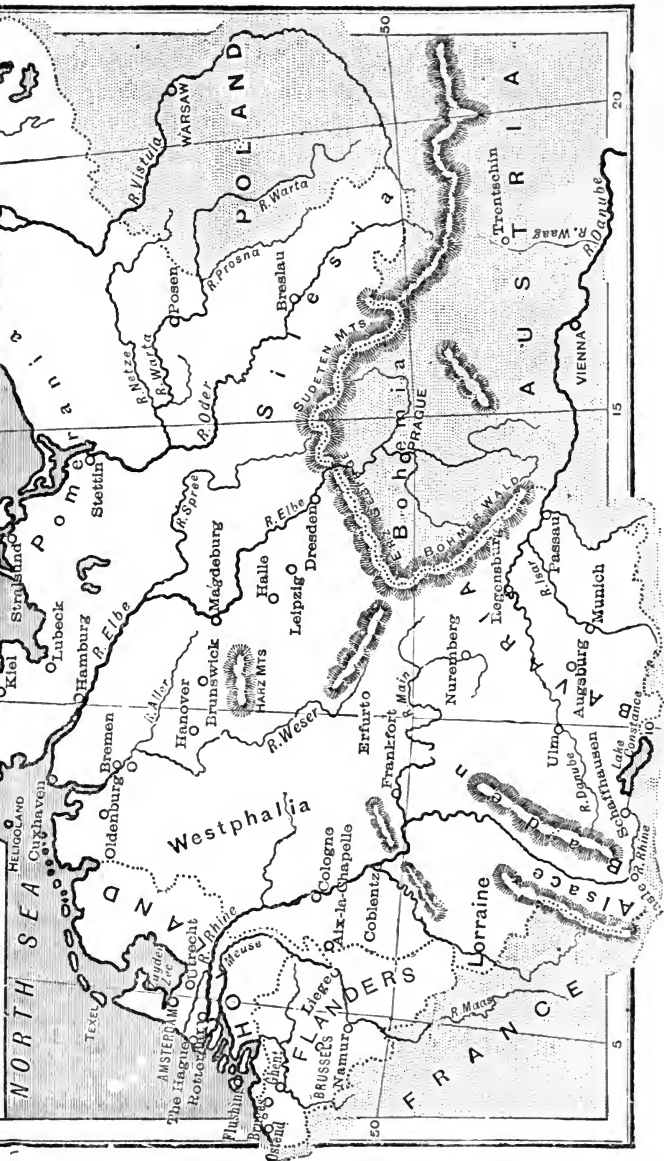
In England they had three factories, one at London called the steelyard, and branches at Boston and Lynn. The London steelyard, situated where Cannon Street Station now stands (see fig. 21), had considerable privileges, and carried on a prosperous trade, which roused the jealousy of English merchants, and in 1597 it ceased to exist. The factory at Bruges commanded much of the trade of the Low Countries, the one at Bergen monopolised the export trade of Norway, and the Novgorod factory was the great centre of the trade of Russia and Poland. The commodities in which the Hanse merchants traded were the products of the Baltic countries and of Russia; they exchanged hides, leather, tallow, timber, ship-building materials, iron, copper, and salt fish from these countries for the wool of England, the woollen cloth of Flanders and England, the wines and beer and metal work of Germany. Their power began to decay when the maritime countries of the North began to carry on their own trade, and the towns of Poland, Prussia, and Norway withdrew in consequence from the League. The Baltic trade was governed by a code of maritime laws answering to *Il Consolato del Mare*, and known as the Ordinances of Wisby, from a town in Gothland, which was one of the members of the Hanseatic League.

The Flemish Towns.

Flanders was one of the chief seats of the manufacture of wool in the Middle Ages. It obtained most of its wool from England, and the commercial relations between the two countries led to a close political alliance. The most important Flemish towns were:—Bruges, Ghent, Lille, Ypres, and Arras. Bruges, which contained a Hanse factory, was connected with the sea by a canal, and was one of the chief marts

GERMAN EMPIRE AND THE NETHERLANDS in the Fifteenth Century.

Scale: 140 miles to the inch.



in Northern Europe for the sale of the products of the East, which reached it from Venice, both by sea and overland, by way of the Rhine. The closing, in 1482, of the canal which connected Bruges with the sea caused its decay, and Antwerp took its place as the chief mart for Eastern trade.

The German Towns.

So much of the traffic, between the Hanse towns and the Flemish towns and Italy, as passed overland, went along the valley of the Rhine and across the Alps, either to Venice or Genoa. As long as Italy remained the chief centre of the Eastern trade, the German towns which were situated along these routes grew in prosperity. The chief towns to benefit were the Rhine cities of Cologne and Basle. Unfortunately for German prosperity, the condition of German society was extremely insecure. The power of the Emperor was too weak to ensure order, and in no country in Europe did anarchy run riot as in Germany in the 13th, 14th and 15th centuries. The feudal barons formed leagues with one another, and plundered and levied extortionate tolls from the merchants. For protection against the nobles, leagues were formed by the commercial towns; one of these leagues consisted of the towns of the Rhine (1255), the other of the Suabian towns, the chief of which were Augsburg, Ulm and Nürnberg, all of which were on the trade-route between Venice and the north. Another German trade-route led from the Rhine to Nürnberg, Regensburg and so by way of the Danube to Vienna and the Black Sea and Constantinople, where it tapped some of the Eastern trade, and another river-route led from the Danube, below Vienna, by way of Galicia into Russia (Gibbins' History of Commerce in Europe, p. 74). The Elbe valley, at the mouth of which stood the Hanse port of Hamburg, was another important German trade-route.

The German artisans of the Middle Ages were remark-



able for the beauty of their metal-work, and for their skill in carving and other industries. Paper was made at Mainz in 1320, and Nürnberg in 1390, and the former of these towns is one of the places that lay claim to be the seat of the invention of printing.

Fairs.

In Europe of the Middle Ages, especially in the districts north of the Alps, fairs played a very important part. Shops were few, the population was scattered, and merchants required for the disposal of their goods a market embracing a larger area than that of a single town. Two large fairs of this kind are still held, one at Leipzig, in Saxony, mentioned in the 13th century, the other at Nijni-Novgorod, in Russia, which is much later in date; it was originally held at Kasan, was moved to Makarieff in 1648, and to Nijni-Novgorod in 1817. Towns often grew up on the sites of fairs, *e.g.*, the growth of Yarmouth in England is connected with the great herring-fair held near the town.

Mediæval Currency.

The Roman *aureus* (p. 50) survived in the bezant coined by and named after the Byzantine emperors, and worth between £1 and 10s. Other gold coins of the Middle Ages were the florin of Florence, the ducat or sequin of Venice and the florin of Germany, all worth about 10s. The chief silver coins were the silver bezant (from 2s. to 1s.), the denier (*denarius*) or penny (about 3½d. or 4d.), the silver florin of Florence (about 4d.) and the large denier or groat (*grossus denarius*, about 13d.). The figures £ s. d. which are placed at the head of our money columns are a trace of mediæval terms. £ standing for *libra* or pound weight of silver, s. for *solidus*, $\frac{1}{20}$ of the libra, and d. for *denier*, $\frac{1}{12}$ of the solidus. (Gibbins, *Hist. of Commerce in Europe*, 57).

CHAPTER VI.

English Commerce in the Middle Ages.

English commerce was a plant of very slow growth, and England, in comparison with the cities that have been mentioned, was extremely backward. Before and even for some time after the Norman Conquest, English trade was insignificant, and chiefly in the hands of foreigners. The greatness of England, as of Rome, was based not on commerce at first, but on agriculture. Up to the 14th century England was almost entirely an agricultural country. At the time of the Norman Conquest, its manufactures were insignificant, its mineral wealth hardly developed at all, its towns few and unimportant. England never became a very important commercial country until the beginning of the period of oceanic commerce, for which her position affords her great facilities, while during the Middle Ages she was far removed from the chief centres of traffic in the Mediterranean.

The basis of her commercial prosperity was wool, of which she had almost a monopoly in Europe. No other country could compete with her in the production of wool, which was exported to Flanders and Italy, and there made up into cloth. In process of time the English learnt how to manufacture, first the coarser, and then the finer kinds of cloth, and thus England became not merely a wool growing and wool exporting, but a cloth manufacturing and cloth exporting country.

Norman Conquest.

Of English commerce before the Conquest but little is known. Foreign merchants had already begun to visit England and English merchants to travel on the Continent. Charles the Great in a letter to Offa of Mercia (796) promises protection for English merchants in his dominions. "Men of

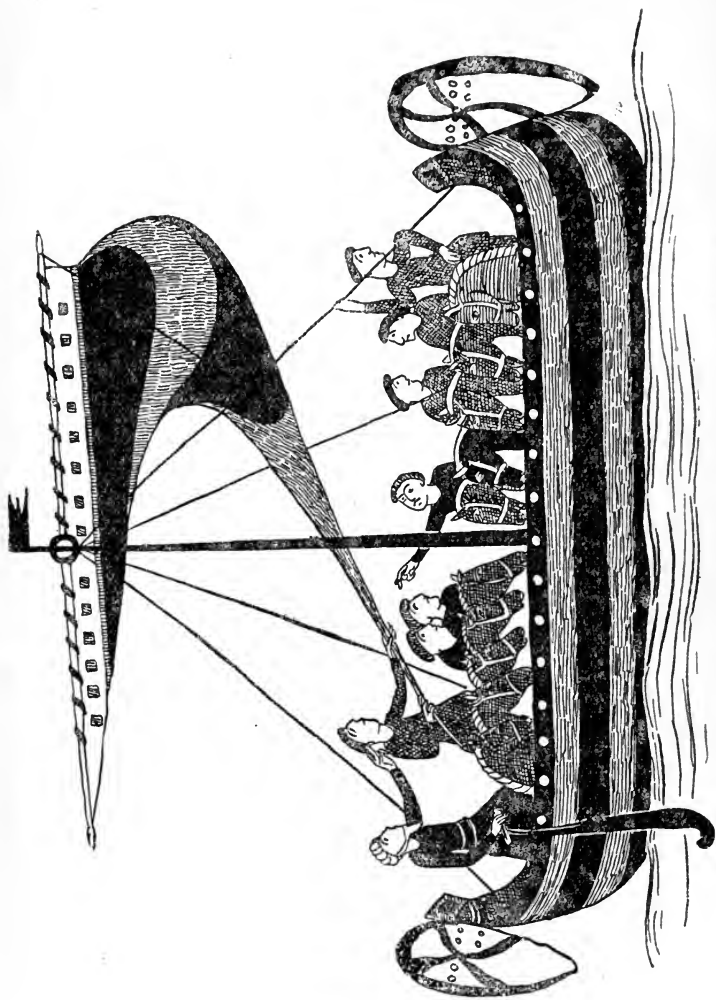
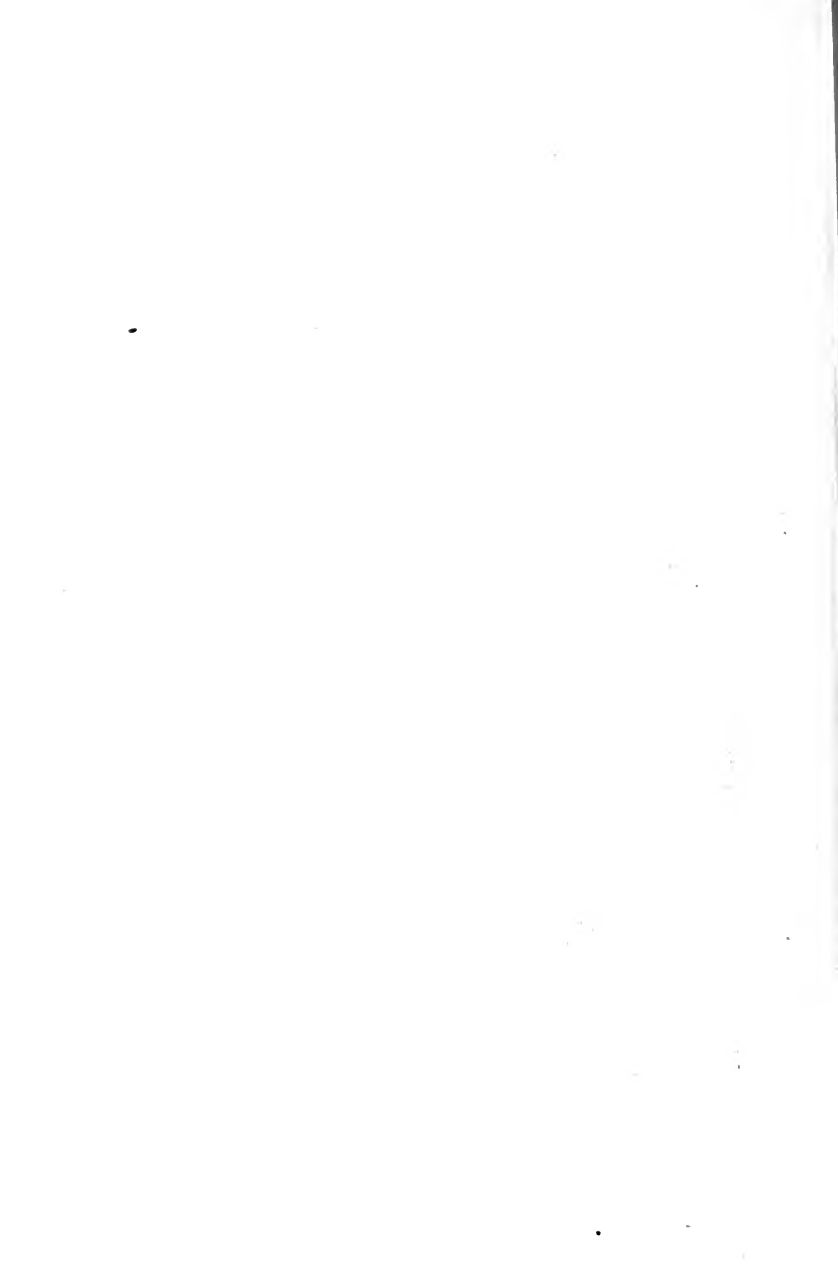


FIG. 22. NORMAN SHIP OF THE 11TH CENTURY.
(From the Bayeux Tapestry.)





the Emperor," *i.e.* German merchants, had special privileges in London, and many Frenchmen (*i.e.* Normans) settled in England even before the Norman Conquest. But the foreign commerce of England was trifling. The Norman Conquest is an event of considerable commercial importance, as bringing about a closer connection between England and Europe, especially with France and Flanders. For some time English sovereigns owned the country on both sides of the English Channel, and this made trading more secure and profitable.

An immigration of foreign artisans began soon after the Conquest. A number of Flemish weavers who were driven from their own land settled in England under the protection of their countrywoman, Matilda, the wife of William the Conqueror. They were at first settled in different parts of the country, and after frequent quarrels with the native English, were assigned a special district in Pembrokeshire.

The Normans brought with them into England the Jews, the chief capitalists of the times, whose chief occupation was money-lending. They were the king's chattels, had no rights, were a fruitful source of revenue to the Crown, and perhaps gave a stimulus to trade, but were universally hated by the people, and were expelled¹ by Edward I., and not allowed again to live in England till the time of Cromwell.

The greatest benefits that the Norman Conquest, and the rule of the Norman and Angevin kings, brought to English commerce were a strong, central rule, the suppression of disorder and the peaceful development of English institutions.

For our knowledge of the condition of England at the time of the Norman Conquest, we are chiefly dependent upon the results of the Domesday Survey (1086), which was an account of all the manors in England, and was undertaken by the order of William I., to ascertain the amount of revenue that the land was capable of bearing. The greater part of England in the 11th century seems to have been cultivated on the manorial system. The manor was a kind of village community subject

to a lord, and containing a number of tenants, who held land of the lord, part of whom were free, and part serfs or villeins, bound to the soil and unable to leave it. The manor, besides containing the houses of the lord and his tenants, consisted of three parts, arable land, meadow, and waste. The arable land was generally worked on what is known as the three-field system, *i.e.*, it was divided into three fields, on one of which wheat was sown, on another barley, oats, or beans, while a third lay fallow; the arable land was divided between the demesnes of the lord and the holdings of the tenants. The land consisted of open fields, without permanent hedges or enclosures, and was ploughed by the tenants working together. The tenants, besides holding part of the arable land, had the right of pasturing their cattle on the meadow and on the arable land after the harvest had been reaped, of cutting turf and hay on the meadows, and of gathering wood on the waste, but, subject to such rights, the meadows and the waste belonged to the lord, who could enclose parts of them if he left sufficient for the wants of the tenants. The tenants, both free and unfree, were bound to do certain work for the lord, and to pay him rents, partly in kind and partly in labour, more rarely in money.

The respective rights of the lord and his tenants were regulated by custom, varying with each manor, but defined and precise. The villagers elected, from among their number, a reeve, who saw that each villager did the work that he was bound to do for his lord; the bailiff, the lord's servant, saw that the work was of proper quality, while the steward, the lord's deputy, presided in and kept the records of the manorial courts, which registered changes of holdings, and which the tenants were bound to attend. The lord, in his turn, was dependent on a superior lord or on the king, and bound to render him military service, and to pay a tax or rent for the whole manor. Sometimes the king himself was lord of a manor. The villagers also included the parson, who held

land—the glebe—in return for his religious services, and craftsmen, such as the carpenter and the blacksmith, who held land on condition of doing work for the villagers and the lord. The manor generally had a mill belonging to the lord, at which the tenants were forced to have their corn ground, and sometimes a market also belonged to the lord, at which they had to sell their goods.

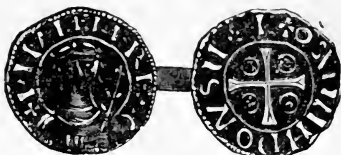


FIG. 23.

SILVER PENNY OF WILLIAM I.

As regards most of the necessities of life, the English village at the time of the Domesday Survey was a self-sufficing community, but its inhabitants needed some few commodities, such as iron for their ploughs, and salt for keeping meat during the winter, as the art of feeding cattle during the winter had not then been discovered, and the greater part of the animals used for food were killed at the end of the autumn and their flesh salted. Fish, also, owing to the influence of the Church, was probably in the Middle Ages a much commoner article of diet in country districts than is the case now. Necessaries of this kind, and luxuries for which there was any demand, were supplied by fairs, the most important of which were held at Winchester and at Stourbridge, near Cambridge, which were much frequented by foreign merchants.

Of the English towns, which did not number more than eighty at the time of the Domesday Survey, and many of which were unimportant, London, which had been an important place in Roman times was, as it has ever since remained, the largest and the wealthiest city in the country. Situated at the mouth of the Thames, and facing the part of Europe, which after Italy, was then the chief seat of commerce, it commanded a great part of the continental trade. Under the Norman kings it became the capital of the

kingdom instead of Winchester, which had been the capital of the West-Saxon kings. Bristol and Chester, the ports through which the trade with Ireland passed, were of considerable importance, while Boston and Lynn were centres of the export trade in wool.

The Cinque Ports, Hastings, Sandwich, Dover, Romney, Hythe and the two "Ancient Towns," Winchelsea and Rye, formed with their "members," the chief of which were Seaford, Pevensey, Deal, Folkestone, Faversham, and Lydd, a maritime corporation which was bound to furnish ships to the Royal Navy, and which played an important part in the wars between England and France. This corporation exercised jurisdiction as far north as Yarmouth, and supervised the great herring fair, held on the site on which the town of Yarmouth afterwards grew.

The greater part of the maritime trade was in the hands of foreigners, such as the merchants of Cologne, and afterwards of the other Hanse towns. Henry of Huntingdon, writing in 1155, says that an extensive trade was then carried on with Germany, the exports from England being lead, tin, fish, meat, cattle, wool and jet, while silver was imported, and corn was exported in times of plenty and imported in times of scarcity. Spices and other products of the East were imported either from the Hanse towns, or from Bruges, wine from Germany and France, the possession of Guienne by the English kings leading to a brisk trade with Gascony. English wool was exported to Flanders and Italy; the wool to Italy being partly conveyed overland by the Seine and the Rhone to Marseilles, or across the Alps to Turin and Florence, or by sea direct to Italy. Italian merchants from Lucca, Florence and Piacenza bought English wool and shipped it at Boston and Lynn. After 1317 a fleet of Venetian galleys touched at Southampton every year till 1567, and exchanged the products of the East for English wool.

The Norman Conquest among other results led to increased

intercourse between England and the See of Rome, which derived a considerable revenue from ecclesiastical dues and from the frequent appeals to the papal courts in ecclesiastical cases. This*revenue was transmitted to Rome by the papal agents, the Lombard bankers, in the form of bills of exchange, against which wool was exported (Cunningham, *Growth of English Industry and Commerce, Early and Middle Ages*, 194).

The Lombards and the Caursines from Guienne carried on the business of money - lending in England after the expulsion of the Jews, though usury or the lending of money at interest was condemned by the Church in the Middle Ages as



FIG. 24. SILVER GROAT OF EDWARD III.

sinful, and was prohibited by Ordinances of the City of London in 1363 and 1390-1. Traces of Lombard influence in England remain in the name of Lombard Street, the street of banks in the City of London. Foreign merchants, although viewed with jealousy by the English, had rights reserved to them by law. One clause of Magna Charta (1215) provides that all merchants, unless openly prohibited, should have safe and sure conduct to depart out of England, to come into England, and go through England as well by land as by water, except in time of war, to buy and sell without any manner of evil tolls, on payment of the ancient and just customs.

Growth of Towns.

The increase of English trade, after the Conquest, is to be seen in the growth of towns and the granting of privileges to them. In the course of the 12th and 13th centuries, and later, a great number of towns received charters from English

kings or the lords on whose land they were built. These charters generally gave the towns liberty to tax and govern themselves, freedom from toll and the right to form a Hanse or gild merchant. The gild merchant was a corporation that controlled the whole trade of the towns, and its regulations generally provided that "no one who is not of the gild may merchandise in the towns except with the consent of the gild merchant."

The formation of the gild merchant raised the status of the traders. If a trader fell into poverty, or if he was imprisoned or accused, the gild helped him. The gild had its own laws and courts for the trial of disputes. The member of a gild "had a wealthy body behind him, so that he was a person of credit; his promise to pay, or his warrant for goods, was worth more than that of the merchant who stood alone on his personal reputation for honesty; and whether he visited a distant town or a fair he could claim to be regarded as a person of status, who could give a sufficient reference in connection with all transactions in which he was concerned." (Cunningham, p. 208.) Although membership of the gild merchant did not necessarily imply membership of the corporation of the town, yet the two seem to have been closely connected. The "Guildhall," which was the seat of the government of the town, derives its name from the merchant gild, and in many cases the members of the gild seem to have monopolised the government of the town.

Craft Gilds.

As trade increased, industries increased in number, and it became impossible for one body like the merchant gild to control the whole of the trade of a town, and its place is taken by a number of gilds in each town, each gild controlling a particular industry. These gilds were called craft gilds. Thus in London a gild of loriners (makers of horses' bits) was formed, with the assent of the Mayor and the "barons" of the

city, in 1281, "for the amendment and relief of the mistery (*i.e.*, craft) and the honour of the city, and for the abating of all guiles and trickery." The ordinances of this gild arrange for the Saturday half-holiday and other holidays, and contain provisions against the enticing away of apprentices, and for fixing the terms on which apprentices may be taken, and strangers received to work. The ordinances of the gild of cordwainers (workers in leather) in London (1303) provide that "those who shape and make shoes shall mix no manner of leather with other, but shall make them wholly of one leather," and that "four proved men of the mistery are to go, each month at least, and at all times when they shall hear that there is necessity throughout the trade, and make search, and the articles they shall find made and mixed they shall take and bring into the chamber of the Guildhall, to take their award before the Mayor and Aldermen, according to the law and usage of the City of London." (Cunningham, 310.)

The craft gilds, of which there were a great number in London and the chief towns, acted under the authority of the corporation of the town, or when there was no corporation, under the authority of the lord of the manor, as was the case with the Cutlers of Sheffield. The object of the gilds was to regulate trade, to ensure good workmanship, to fix reasonable prices, to determine the number of apprentices and craftsmen. Each gild was a brotherhood, and provided for the relief of the poor members and for religious services, at which masses were said for the souls of deceased members.

As trade still further increased, gilds or companies were formed, not of persons who made goods but of merchants who sold them. Instances of these merchant companies are to be found in some of the great Livery Companies, which got into their hands the government of the City of London. The chief of these were the Grocers Company (1305), the Mercers, Drapers, Fishmongers, Goldsmiths, Vintners, and Merchant Tailors. Out of these

merchant companies, dealing chiefly wholesale in a particular class, arose merchant companies trading with particular foreign countries. Thus the Merchant Adventurers (incorporated in 1407), who became the rivals of the Hanseatic merchants, grew out of the Mercers' Company, and the Turkey Company, for trading with the Levant, grew out of the Grocers' Company.

The importance of the towns and trading classes in England increased when the representation of the towns in Parliament, begun by Simon de Montfort in 1265, became regular under Edward I. and succeeding sovereigns. The fact that

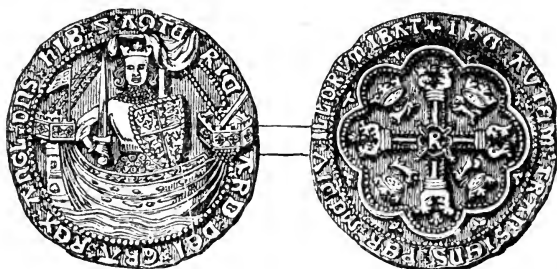
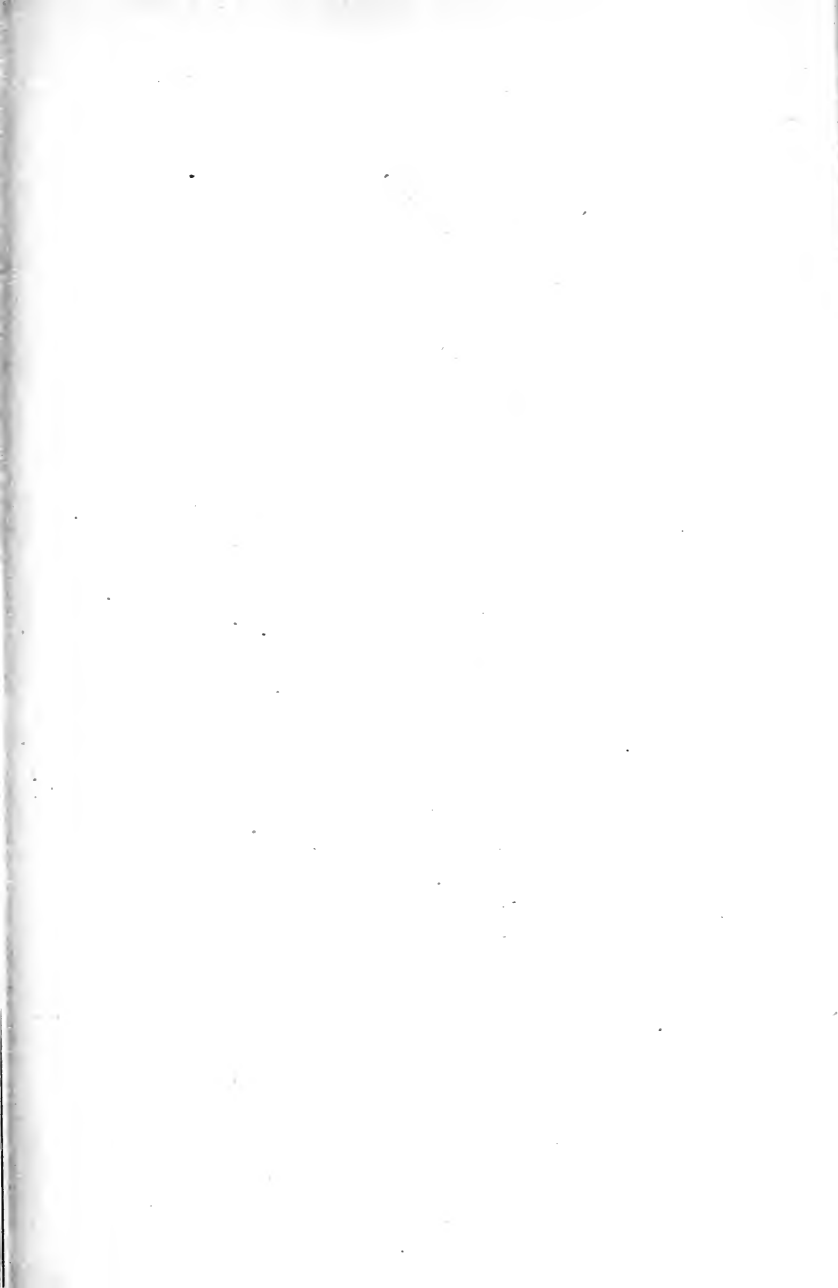


FIG. 25. GOLD NOBLE OF RICHARD II.

in the House of Commons the representatives of the towns sat side by side with the knights of the shire, or representatives of the lesser gentry, bears witness to the increasing importance of the trading classes, and had far-reaching results in binding together the different classes of English society in one body. In most of the countries of Europe the representatives of the towns in the States-General, or corresponding assembly, appeared by themselves as a separate order. In England it was quite different, and the union of the gentry and burgesses in one assembly did much to consolidate the English nation, and to remove the division of the country into different classes, which prevailed in the continent of





Europe. The representatives of the towns made their presence felt by their influence on commercial legislation, and in the Parliaments of Richard II. the London merchants played an important part.

Chief Articles of Trade.

From the Norman Conquest to the time of Edward III. the exports from England seem to have consisted of raw materials, the "staple" articles, *i.e.*, wool, woolfells (*i.e.*, hides of wool), and leather, together with coarse cloth, tin, lead, fish, (chiefly herrings), and sometimes corn, which seems to have been exported in times of plenty.

The chief imports were wine, for the sale of which the Gascon merchants and the men of Cologne had special privileges, woad for the dyeing of cloth, spices, drugs, oil, perfumes, sugar, silk, trinkets of gold and silver, and fine manufactured goods from the East and Italy, brought by the Genoese and Venetian fleets, fine cloth from Flanders, and furs, timber, and ship-building materials, imported from the Baltic by the Hanseatic merchants. The chief source and basis of English prosperity was the trade in wool. A great deal of the trade seems to have been in the hands of a corporation of merchants called the Merchants of the Staple, who were in existence as early as the time of Henry III.

We have a list of the imports and exports for the year 1354, from which it appeared that the total value of the exports was over £212,000, and of the imports over £38,000; the exports in the list consisted of wool, woolfells, hides, pieces of cloth and worsted stuff; the imports of pieces of fine cloth, wax, wine, linens, "mercery" and grocery; the value of the last three articles was considerably more than half the value of the whole of the imports. (Gibbins, History of Commerce in Europe, 94).

CHAPTER VII.

English Manufactures.

In the course of the 14th century, England, instead of being a wool-growing country, began to manufacture and export woollen cloth. The industry of weaving a coarse kind of cloth had been carried on before the Norman Conquest, and had benefited from the settlement of foreign artisans, such as the Flemish weavers in the reign of William I. But the supply of home-made cloth was, for some time, insufficient for the needs of the country, which imported all the finer cloths from abroad, especially from Flanders and Italy.

The manufacture of cloth in England received a stimulus when Edward III., the father of English commerce, invited over to England Flemish weavers, fullers and dyers. A thriving industry soon sprang up, and cloth began to be exported. The growth of the manufacture of the "old drapery," as it was called, is seen in the decline of the customs from wool, and in the growth of the trade of the Merchant Adventurers, a trading company who established themselves at Antwerp in 1296 and at Bruges in 1338; their chief business was the exportation of woollen cloths from England to the Low Countries. The chief seat of the cloth manufacture was in the eastern counties. Worsteds were made in Norfolk, Suffolk and Cambridge; broadcloth in Norfolk, Suffolk and Essex, and in London; but cloth was also made in other places, such as Somerset, Dorset, Devonshire, Kendal, Gloucester, Bristol, Salisbury and Winchester. The cloth manufacture remained the chief English industry until in the 19th century the manufacture of cotton goods outstripped it. The finer varieties were still imported from abroad, until the secret of manufacturing them was communicated by the Protestant refugees who came from Flanders and France under Elizabeth, and from France again under James II. With the growth of this manufacture

of cloth a number of subsidiary employments sprang up, such as carding, fulling, shearing and dyeing.

As the weaving of cloth was an industry that could be carried on by members of a family along with agricultural work, and equally well in the country as in the towns, a migration of industry seems in consequence to have



FIG. 26. ANGEL OF EDWARD IV.

taken place from the town to the country, where the weavers were free from the restrictions of the gilds. From the 14th century onwards the gilds and many of the corporate towns seemed to have declined, and the domestic system, under which cloth was woven by the members and servants of a family, took the place of the gild system until it was in its turn supplanted by the factory system in the middle of the 18th century.

Other industries were springing up besides cloth-making. Clockmakers from Delft were encouraged to settle in London in 1368, and linen weaving was introduced before the end of the 14th century. Silkmaking is known to have been carried on in London in 1455, but does not seem to have prospered much until the arrival of skilled workers in the persons of the Protestant refugees in the 16th and 17th centuries. Machinery was used in certain manufactures, such as the making of caps; watermills for this industry were in use in 1376. Iron ore, which up to the 17th century was smelted by charcoal, was worked in Flintshire and Gloucestershire before and at the time of the Domesday Survey, but the industry did not attain any importance till a much later date. Coal was worked near Newcastle-on-Tyne, in Shropshire and Staffordshire, but its use for manufacturing purposes was prohibited in

London by a royal proclamation of 1307. Paper made from linen rags was in use in England in the 14th century,



FIG. 27. SOVEREIGN OF HENRY VII.

but was chiefly imported from France. The printing press was introduced into England by Caxton, from the Low Countries, towards the end of the 15th century; the first book printed in England appeared in 1474.

Agriculture.

Agriculture in England, in the 14th century, was passing through a severe crisis owing to the decay of the manorial system. The services, which the villeins owed to their lords, had in many cases been commuted for money payments, or ceased to be exacted. Many of the villeins were allowed to leave the land to which they had been bound. By becoming citizens of a corporate town, or by entering the Church, they could obtain their freedom; in other cases they were being changed into yeomen or free labourers. The terrible pestilence called the Black Death, which destroyed nearly one half of the population of England in 1348-9, produced a great scarcity of labour. The labourers that were left demanded higher wages, and difficulty was felt in getting men to till the land. An attempt made by the Statute of Labourers (1351) to

force labourers to work at the old rates proved a failure, and many of the landlords attempted to revive their rights over their villeins. This revival of rights, which had fallen into disuse, was one of the causes of the Peasant Revolt of 1381. One of the peasants' grievances was the obligation to grind their corn at the lord's mill, or to pay tolls at the lord's market. Another feature of the revolt was the burning of the muniment rooms, with the same object as the burning of the chateaux in the French Revolution of 1789, viz., to destroy the manorial records of the obligations of serfdom; the peasants also extorted charters of manumission from their lords. The revolt failed, and villenage lingered on till the times of Elizabeth. Yet the system was doomed, and changes were at work which made the villeins' services of less use to their lords, who no longer had an interest in retaining their hold upon them. (Cunningham, 361.) The great difficulty that was experienced in getting labourers to till the soil led in the 15th century to an increase of sheep-farming, which needed fewer hands, and which had become very profitable owing to the prosperity of the cloth manufacture. Land for sheep-farming was obtained by enclosing part of the lord's waste, or converting his portion of the arable field of the manor into pasture; this led to a decline of tillage and to a decrease in the rural population.

Another expedient for meeting the scarcity of labour was the "stock and land lease," which was in common use in the last half of the 14th century. Under this system the lord let part of his demesne lands and the stock on them to a tenant, who paid an annual rent for land, stock and implements, and agreed to give up the land with an equivalent amount of stock and implements at the end of the tenancy. This system marks the beginning of the modern method of tenant farming, and, as the farming class grew in wealth, was afterwards changed to the modern system by which the landlord lets the land only, and the farmer provides the stock and implements,

Reclaiming of Land.

Large areas of England that are now cultivated have been won from the sea by processes of embanking and draining, which have been carried on from times of great antiquity. In three districts in particular, Romney Marsh, the Thames Estuary and the Fens, some considerable progress was made in the reclamation of land during the Middle Ages.

Romney Marsh.

The work of "inning" this marsh, or of damming out the sea by embankments, seems to have been begun by the Romans during their occupation of Britain, and to have been taken up after an interval by the English settlers. The Archbishops of Canterbury, and the monks of the convent of Christchurch, Canterbury, who held large estates in the Marsh, led the way in this work, which was carried on in accordance with "the law and custom of Romney Marsh." By this custom twenty-four of the chief inhabitants, called "Jurats," were chosen by the "marshmen" to take necessary measures for the maintenance of the sea-banks, and to levy a rate upon the occupiers of marsh lands for the purposes of executing repairs.

The work of reclamation, aided by changes in the coast caused by deposits of shingle, resulted in the whole of Romney Marsh being reclaimed from the sea, and made available as grazing ground for cattle and sheep.

Thames Estuary.

The Thames between London and Gravesend seems originally to have formed a broad estuary, which in places was several miles wide. The embanking of this estuary, and the enclosing of the river in a narrower channel, seems to have commenced at a very early period. Embankments were made on both sides of the river, and commissioners were appointed to levy rates and impress labourers for the purpose of keeping

the banks in repair. Frequent breaches were made in the banks by the tide, and the low-lying districts were submerged, and it was not till after extensive works, undertaken in the 17th and 18th centuries, that the wanderings of the river were successfully restrained.

The Fens.

The process of reclaiming the "Great Level of the Fens," the low-lying district bordering on the Wash at the junction of the counties of Lincoln, Huntingdon, Cambridge and Norfolk, was a much more difficult undertaking than either the reclaiming of Romney Marsh or the embanking of the Thames, and was not completed till comparatively modern times. After the Romans, who here, as in Romney Marsh, left traces of their work, the first reclaimers of the Fens were the members of the monastic houses who settled in the islands which arose above the level of the waters. The chief of these were the monks of Ely, Croyland, Thorney and Ramsey, who made causeways over the marshes connecting the islands with one another, and made new channels for the purpose of draining and embankments for damming out the water. Some of the land-owners also attempted experiments in draining. Thus in 1427 Gilbert Halloft drained and cultivated a small tract of country in the North Level. Another land-owner, Richard de Rulos, diverted the waters of the Welland and reclaimed the rich lands of Market Deeping "out of the very pits and bogs, thereby making a garden of pleasure." John Morton, Bishop of Ely in the reign of Henry VII., caused a cut or canal, 40 miles long, to be dug from near Peterborough to the sea for draining the valley of the Nene, and to enable navigation to be carried on between Peterborough and the sea. The work is still called by his name, and is known as "Morton's Leam." "Dyke-reeves" were appointed to provide for the security of the sea embankments, and "fenwards" in the interior to keep open the drains and maintain the dykes.

When lands were drowned by the water, the sheriff had power to impress labourers to repair the breaches, and commissioners of sewers were appointed to levy rates "after the law and usage of Romney Marsh." In one district the owners of land bordering on the Fens were directed to plant willows on the banks "to break off the force of the waves," and the owners of swine were subject to a fine of one penny for every pig found unringed on the banks. (Smiles' *Lives of the Engineers*, i., 29.) The work of reclaiming the Fens on a large and systematic plan was not undertaken till the 17th and 18th centuries.

Means of Communication.

Communication between the different parts of England, where navigation was not available, long remained in a backward condition, owing to the badness of the roads. The Romans understood the importance of road-making, and the excellent roads that they constructed in Great Britain long continued to be the highways of internal communication, and remains of them exist to the present day. A number of towns sprung up on the course of these roads, as is shown by the frequency in England of names such as Stratford and Stretford, and of towns that end in "street," such as Chester-le-street. These roads, however, in course of time fell into decay and became disused, and very little effort seems to have been made to replace them.

The obligation to repair roads, bridges, and walls of towns was, according to old English usage, incident to the ownership of land; but the work of repair was very inefficiently carried out, nor was there any provision for the construction of new roads. Most of the country roads seem to have been little more than tracks, and were almost impassable in winter. The traffic that passed along them seems to have consisted chiefly of pack-horses, which were used for the conveyance of goods. Some attempts were made by the royal authority to

improve the state of the roads. Edward I.'s first Statute of Winchester directed that highways leading from one market town to another

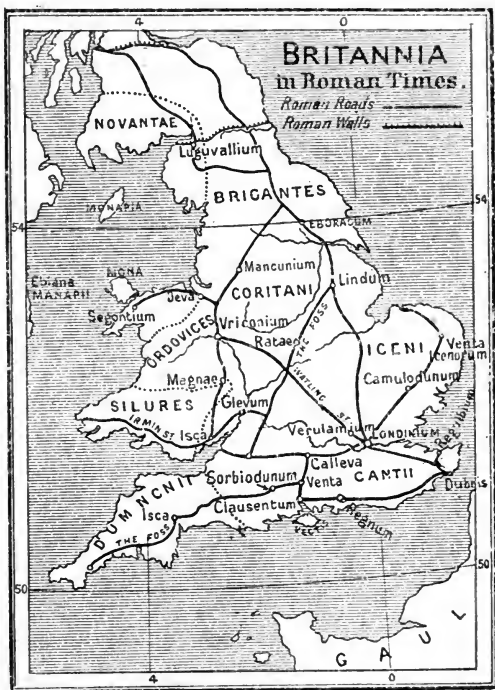
should be enlarged, where bushes, woods or dykes were, so that there be neither dykes nor bush

"whereby a man may lurk to do hurt" within 200 feet of the one side and 200 feet on the other side of the way.

Edward III. authorized the levying of a toll for the repairs of the roads leading from St. Giles's-in-the-Fields to

Charing Cross (St. Martin's Lane), and to Temple Bar (Drury Lane) and the road then called Perpoole or Portpoole (now Gray's Inn Road). Private persons often left benefactions for the repairs of roads. A London Alderman (1469) left "for the repair of the highway without Bishopsgate five marks, and for the highway without Aldgate, 100 shillings."

The great monastic houses seem to have devoted a good deal of attention to the making and repairing of roads, prob-



ably to facilitate the despatch of wool and other products of their land, and the dissolution of the monasteries is said to have had for one of its results the deterioration of roads in country districts. No efficient means were taken for the remedying of the evil until, in 1555, an Act was passed providing that each parish should elect two surveyors of highways to provide for the maintenance of repairs by compulsory labour.



FIG. 28. TOWER OF LONDON AND LONDON BRIDGE. (15TH CENTURY.)

Bridge Building.

The work of bridge building in the Middle Ages was not so much neglected as the work of road making, and sums of money were often bequeathed by private benefactors for the purpose of building and maintaining bridges. The monastic houses also played an important part in bridge making. The first English arched bridge of stone is said to be one near the abbey of Croyland as old as the 10th century. A stone bridge over the Lea, at Stratford-le-Bow, is said to have been built by the order of Matilda, Queen of Henry I., between 1100 and 1118. A French religious order, known by the name of the Brothers of the Bridge, founded in the 13th century, spread into England, and its members went about the country building bridges and chapels on them. Among bridges built by churchmen were the bridge over the Trent at Burton, 1,545 feet in length, and composed of thirty-four arches, the Bishop's Bridge at Norwich (1295), and Wade Bridge, over the Camel in Cornwall (1485), which consisted of seventeen arches. Old London Bridge (1176-1209) which, till Westminster Bridge was built in 1738-50, was the only bridge over the Thames at London, had for its architect the chaplain of St. Mary's Colechurch. Rochester Bridge, over the Medway, over which went most of the traffic between London and the Continent, was first built of stone at the charge of Sir Robert Knolles, one of the commanders in Edward III.'s French wars.

Most of the bridges erected in the Middle Ages had chapels or chantries on them, and were sometimes, as in the case of Bishop-Auckland Bridge over the Wear, and Newcastle Bridge over the Tyne, maintained by offerings collected by the priests who ministered in the chantries. One of these bridge-chuntries, at Wakefield in Yorkshire, is still preserved. Old London Bridge, besides having a chapel, contained rows of houses. The bridges of the Middle Ages were very narrow and their gradients very steep, and many of them contained

arched gateways, which did not admit of the passage of any but small wheeled vehicles. It is probable that wheeled vehicles were not in use in England before the 17th century,

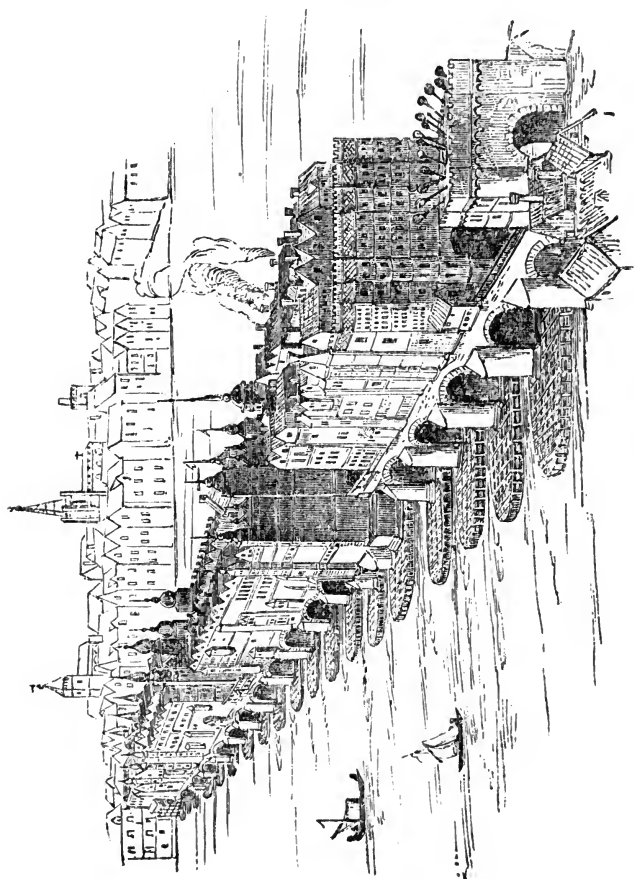


FIG. 29. OLD LONDON BRIDGE.

except chariots and carts for the use of persons of position ; goods were chiefly carried on the backs of packhorses.

As the roads of the Middle Ages were few and defective, it became necessary for purposes of traffic to make as much use of river communication as possible, and most of the chief towns in England in the Middle Ages were built on rivers or on natural canals, such as those which connected Norwich, Doncaster and Cambridge with the sea. With the exception of the Fen drains, some of which, like Morton's Leam, were used for navigation, it does not seem that any successful



FIG. 30. SHIP OF THE TIME OF RICHARD I.

attempt was made in England to make artificial canals for purposes of communication before the 18th century, and little was done till then to improve river communication.

Shipping.

The maritime trade of England made but little progress for some time. English ships entered the Mediterranean in the reign of Richard I., but the foreign trade was for long in the hands of the Italian and Hanse merchants. The English ships of the 11th, 12th and 13th centuries were little more than large boats, only partially decked and rigged with one mast and one square sail. The Cinque Ports, which were bound to furnish 57 ships for the defence of the nation to serve for 15 days, kept afloat a regular fleet, composed of merchant and fishing vessels, which were turned into men-of-war by the erection of "castles," or square open boxes at the bow and stern to hold fighting men, armed with cross-bows, long-bows, swords, axes and spears. At first these boats were steered by oars, but in the 13th century the use of the rudder became common. In the 14th century large ships called "cogs" were introduced, and another mast and a bowsprit were added. The king's ships, which were at first long rowing galleys, were few in number, and the "Royal Navy of the Cinque Ports" was the chief source relied upon for the defence of the nation.

The Cinque Ports, "the guardians of the sea," bore the brunt of the wars between England and France. They were the chief strength of the fleet which defeated the French under Eustace, the Monk, in the Straits of Dover in 1216, and they were constantly carrying on wars on their own account against the French marauders that infested the English Channel. Their ships were a part of the fleet that defeated the French at Sluys in 1340; of the 710 ships and 14,151 men that formed the expedition for the siege of Calais, the Ports provided 105 ships and 2,140 men. The Ports suffered from frequent

attacks from the French, who plundered their coasts and burnt their towns; while the silting up of their harbours, and changes in the coast-line destroyed their commercial importance, and from the 15th century they began to decline.

The development of the shipping industry was much hampered by the insecurity of the seas. The whole of the English Channel was infested with pirates, whose chief haunts were Calais, St. Malo and the mouth of the Rhine; the English sailors themselves often indulged in piracy. In a picture of English society, drawn by the poet Chaucer in the Prologue to the *Canterbury Tales* (about 1386), a "shipman" of Dartmouth is described as indulging in very questionable practices.

"Full many a draught of wine had he y-drawe (*i.e.* drawn)
From Bordeaux-ward, while that the chapman sleep (*i.e.* slept).
Of nice conscience took he no keep.
If that he fought and had the higher hand,
By water he sent hem (*i.e.* them) home to every land."

The same description shows the limited extent of English maritime trade in the 14th century, the shipman's knowledge of the seas being limited to the western coasts of Europe, from Sweden to Spain and the Mediterranean.

"There was none such from Hull to Cartage¹."

"He know well all the havens, as they were,
From Gothland to the Cape of Finisterre,
And every creek in Britagne (*i.e.* Brittany) and in Spain."

The Royal Navy, it has already been pointed out, consisted of but a few ships, and was totally unable to guard the seas. When the king was appealed to for protection, he granted letters of reprisal, which allowed persons who had been robbed to seize the goods of the countrymen of the robber. This led to a state of things injurious to commercial enterprise, for a licensed private warfare was carried on between English merchants and the people of Norway, Prussia,

¹(*i.e.*, Cartagena.)

Flanders, Scotland, Spain and Genoa (Cunningham, 280). The dangers of the seas were a common cause of complaint. Chaucer, in his description of the Merchant in the Prologue to the Canterbury Tales, writes :

“ He would the sea were kept for anything,
Betwixt Middleburgh and Orwell.”

Edward III. asserted a claim to the sovereignty of the narrow seas, and, by his naval victories and his capture of Calais, did something to make the Channel safer; but no permanent provision was attempted till three centuries later for the establishment of a strong navy, the only cure for the insecurity of the seas, and all sorts of make-shifts were resorted to. The plan was tried of ordering all vessels sailing for Europe to make the voyage together, under the charge of royal officers. The men of Scarborough complained, in 1383, that their town was, day after day, assailed by Scots, Frenchmen, and Flemings in their ships; and, although they had provided a “ barge and a balinger ” for their own protection, they were unable to maintain an effective defence without aid in manning them.

Henry IV. committed the duty of keeping the seas to the merchants themselves, and empowered them to levy taxes for their expenses. They were to nominate two admirals, one for the south and the other for the north, to be appointed by the king, and to have full jurisdiction in maritime affairs and power of organizing a naval force. This and similar attempts to “ keep the seas ” ended in failure.

Henry V. made a more successful attempt to remedy the evil by making permanent additions to the Royal Navy. He built, in imitation of the Genoese, three large ships called the *Trinity*, the *Grace de Dieu*, and the *Holy Ghost*; and, in his expeditions to France in 1415, the royal vessels numbered six large ships, eight barges, and ten balingers. These efforts were not sustained, and the collapse of the English power, that followed the loss of the English possessions in France, resulted

in a deplorable increase of the insecurity of the seas and coasts.

In the time of Henry VI., organised bands of outlaws, called the "Rovers of the Sea," pillaged the English coasts



FIG. 31. SHIP OF 15TH CENTURY.

Persons living on the sea-coast were kidnapped by pirates, towns like London and Sandwich were burned, and London and Norwich had to defend themselves with booms and chains. The French wars of Edward III. and Henry V. were disastrous in their results, as exhausting the national resources in a futile enterprise, and the evil consequences are to be seen in the anarchy of the Wars of the Roses, which were caused by the weakness of the royal government. With the revival of the royal power under the Tudors, the nation began to recover itself, and effectual attempts were made to increase the navy, but no powerful, permanent fleet was formed till the time of Charles I.

It is an axiom of statesmanship that, a powerful navy cannot exist in a country, unless the country has a plentiful supply of merchant ships, to serve as a "nursery" for the navy. The weakness of the English merchant shipping industry in the Middle Ages, especially after the decline of the Cinque Ports, is seen in the frequent complaints of the decay of shipping. The first Navigation Act of 1381, which prohibited the importing of any merchandise into England except in English ships, could not be enforced because of the weakness of the merchant navy, and an explanatory Act was passed in 1382 providing that English ships, when "able and sufficient," were to be preferred before all others.

English ship-building industry does not seem to have been in a prosperous condition in the 15th century, as it was stated as a grievance in 1442 that Englishmen were prevented from buying or building ships in Prussia and the Hanse towns. No harbours and docks were constructed in England till much later, the purposes of harbours being served by tidal rivers. The chief ports were London on the River Thames, Bristol on the Avon, Southampton on the Itchin, Kingston on the Hull, Gloucester on the Severn, Boston on the Witham, Chester on the Dee, and Newcastle on the Tyne. Ships floated up these rivers at high tide, and lay on the mud when the tide receded.

Rough beacons, composed at first of stacks of wood, and afterwards, in the reign of Edward III., of high standards with pitch-pots, supplied the place of lighthouses. Still improvements in ship-building went on slowly. John Taverner, a merchant of Hull, built a great "carrack" (1449), and William Canynges, one of the merchant princes of Bristol, in the reign of Edward III., is said to have owned 2,853 tons of shipping. Large ships, capable of holding 200 passengers, sailed on regular voyages in the summer with pilgrims to the shrine of St. James at Compostella, in Spain.

The growth of English commerce, in the 14th and 15th centuries, is also seen in the concluding of a number of commercial treaties, such as those with Brittany and with Burgundy; as Burgundy owned Flanders, friendship with it was of especial importance to English trade. Agreements were made with Castile (1403) and with Portugal to secure freedom for English merchants, and for the merchants of those countries to go and stay and return with their goods in safety both on land and sea. English merchants were now beginning to compete with the Hanse merchants, and to trade directly with Prussia and the Hanse towns. The Baltic trade was of especial importance to England as supplying it with timber, hemp, tar, and other materials useful for ship-building.

In 1404 Henry IV. empowered the English merchants trading to Prussia and the Hanse towns (afterwards known as the Eastland or Prussian Company) to meet together and elect governors, with authority to decide quarrels among themselves, and to arrange disputes between English and foreign merchants, and to secure redress for injuries. Similar power to form organisations for mutual protection was granted to the English merchants of Holland, Brabant, Zealand, Flanders, Norway, Sweden and Denmark. The Merchant Adventurers, a London company with branches in Exeter,

Newcastle, York, Hull, Norwich, and Ipswich were the rivals of the Hanse merchants, and had factories at Bruges and Antwerp. They were chiefly engaged in cloth exporting, which was restricted by a stint, or limit, assigned to each member, defining what amount he might export in each year. The rulers of Norway, and of Sweden and Denmark encouraged the trading of English merchants for the sake of freeing themselves from the monopoly of the Hanse merchants.

The extension of English trade, and the practice of reprisals for injuries, led to constant disputes between English and foreign merchants. English merchants carried on a clandestine and contraband trade with Iceland, and in 1476 English sailors ravaged the island and slew the royal bailiff. In consequence of this outrage the English merchants were expelled from Bergen. This dispute was settled by a commercial treaty with Denmark, concluded in 1490, which allowed the English to trade with Iceland direct. In 1403 ambassadors were sent from England to settle disputes with the Hanse towns. Livonian merchants complained that the English had unjustly robbed and rifled three of their ships, and had caused 250 men "very barbarously to be drowned." English merchants complained that citizens of Wismar and Rostock had robbed English ships, and had attacked and burnt the town of Bergen, containing a mercantile settlement of the people of Lynn, consisting of 20 houses, and that the English had lost their houses and goods, and had to ransom their persons. These disputes were eventually settled by the payment of a sum of money by the English king to the foreign merchants. Subsequent quarrels between the English and the Hanse merchants were settled for a time by the Treaty of Utrecht, in 1474, providing that all past injuries on both sides should be forgiven, that a payment of £10,000 should be made to the Hanse merchants, in the form of a remission of custom duties; that two Judges should be appointed in England to do justice between suitors in all cases in which

Hanse merchants were concerned ; and that their three factories in England, the steelyards in London, Boston and Lynn, should be conveyed to them as their absolute property. The Hanse merchants were granted, among other privileges, the right of selling Rhenish wine by retail in England. Edward IV. was obliged by his indebtedness to the Hansard merchants to grant them these favourable terms, but their commercial power was broken, and within a century after the Treaty of Utrecht all their privileges in England were abrogated.

Commercial relations between England and the Netherlands, which had been interrupted in consequence of the support given to Perkin Warbeck, were re-established by the Treaty called the Magnus Intercursus, of 1496, which was received with general rejoicing in both countries.

Signs of the extension of English trade to Italy are to be seen in the appointment in 1485 of a Florentine, Lorenzo Strozzi, to be English Consul at Pisa for the protection of English merchants who were intending to trade there. A commercial treaty, concluded with Florence in 1490, regulated the export of English wool to Italy. Of the wool exported from England to Italy, 600 sacks were to go to Venice, and the rest to be shipped to Pisa in English ships. Englishmen were to have liberty to form a Company at Pisa, and to elect officers to have jurisdiction over their affairs.

CHAPTER VIII.

Commercial Legislation.

Commerce plays a considerable part in English legislation from the time of the Plantagenet kings. In early times attempts were frequently made to regulate wages, and to prescribe the price and quality of commodities. Magna Charta (1215) prescribed a uniform scale of weights and measures throughout the realm. The price of bread and ale was fixed by the Assize of Bread and Ale (1266) and the price of wine by the Assize of Wine (1310). The Assize of Cloth (1328) provided for the measuring of cloth by a royal officer called the aulnager. Edward I. made an arrangement (or "great contract") with his first parliament (1275) and the merchants by which the duties on exports were settled; the "great and ancient custom" was fixed at 6s. 8d. on every sack of wool and every 300 woolfells and 13s. 4d. on every last of hides; foreign merchants paid in addition the "new or small custom" of 3s. 4d. on every sack of wool and 300 woolfells and 6s. 8d. for every last of hides exported. From native merchants who imported wine was levied what was known as "the right prise," *i.e.*, one tun for every cargo of ten tuns and two tuns for every cargo of twenty tuns; the foreign merchants arranged to pay a fixed sum of 2s. a tun and a duty of 3d. per pound on all commodities exported or imported other than those mentioned above. A tunnage of 2s. on wine and a poundage of 6d. on imports and exports were granted to the King at first by arrangement with the merchants to provide for the expenses of the ships of war required for the protection of traders from pirates; the payment commenced in 1347 and in later times was regularly voted by Parliament. Any imposition in excess of these duties was resented as a *maletolte* (evil toll).

The levying of a *maletolté* of 40s. on the sack of wool towards the end of the reign of Edward I. led to great discontent, which was only allayed by the Confirmation of the Charter in 1297, by which it was made clear that no duties in excess of those fixed could be levied except by Parliamentary grant. Later on it became usual for Parliament to grant a subsidy on wool every year. Edward I. organised a body of Customs officials to collect the tolls and the revenue, and to put down smuggling. Certain towns were fixed as places from which wool might be exported, viz.: Berwick, Newcastle, Hull, Boston, Lynn, Yarmouth, Ipswich, Dunwich, London, Sandwich, Chichester, Southampton, Bristol, Exeter, Cardigan, and Chester. The first statute of Westminster (1275) affirmed the old custom that when a ship was stranded it should not be accounted a wreck if a man, cat or dog escaped from it. The cargo was to be kept by the royal bailiff, and the owners might have it restored if they claimed it within a year and a day. The Statute of Merchants (1285) made it easier for foreign merchants to recover their debts. A statute of 1299 was directed against the circulation of bad money, and a statute of 1300 provided for the assaying of gold and the marking of silver with the leopard's head which remains to this day the "hall mark;" the assaying of gold and the marking of silver were entrusted to the wardens of the Goldsmiths' Guild in each town.

Foreign Merchants.

The trading of foreigners in England was favoured by many English sovereigns, in spite of the jealousy and opposition of native English merchants. The citizens of London complained (1290) that those who bore the common burdens of the town were impoverished by the competition of foreigners, whose stay was unlimited, and who carried on business that was formerly done by the natives. Edward III., in a charter granted to London (1327), ordered "all merchant strangers

coming to England to sell their wares within 40 days after their coming hither." A statute of 1335 had a different tendency, and gave liberty to all merchant strangers, without interruption, freely to sell victuals or wares to whom they would, as well foreigners as Englishmen, in despite of any local charter to the contrary. The London citizens again complained, and the king by a fresh charter excepted the ancient privileges of the city from this statute, and in a subsequent charter ordered that no stranger should sell any wares, or be a broker in the city or the suburbs; but an exception was made in favour of the Hanse merchants.

Edward III.'s legislation and policy were directed to the encouragement of foreign trade. He fixed the fare, which might be charged between Dover and Calais, at 6d. for a man on foot and 2s. for a man with a horse. (These sums must be multiplied by at least 15 to give the equivalent price according to the present value of money.) The measures which he took to encourage the settlement of Flemish weavers, and to provide for the safety of merchant shipping, have already been referred to. To encourage the new cloth-making industry he prohibited the export of English wool, forbade the importation of foreign cloth, and ordered that all Englishmen should wear native cloth. These protective measures do not seem to have been enforced in fact, or if at all, only for a short time.

The Staples.

Edward III., by his Ordinance of the Staple, continued and carried forward the policy of Edward I., by which the export of wool was confined to particular ports. The "Merchants of the Staple" were a trading corporation, who exported the staple commodities (*i.e.* wool, woollfells and hides) to Flanders. A patent of 1313 enjoined the "mayor and commonalty of merchants of the realm" to fix on one certain staple (*i.e.* mart or town) in the Low Countries, to which all wool should be taken. The

staple was generally fixed at Bruges, but the plan does not seem to have answered, and Edward III. enacted (1328) that "all staples beyond the sea and on this side ordained by kings in times past should cease." By the Ordinance of the Staple, Newcastle, York, Lincoln, Norwich, Westminster, Canterbury, Chichester, Winchester, Exeter and Bristol were fixed as staple towns for England. All the transactions at these staples were to be settled by the Mayor of the Staple according to the law merchant. Other inducements were held out to foreign merchants to frequent these marts; rents were to be reasonable, aliens might sell by retail if they wished, no man was to be impeached for another's debt, the oaths of foreign merchants were to be accepted, as to the value of their wares, when any question arose as to the levying of duties. The plan of having a number of staples in England does not seem to have answered, and the old plan was resorted to of having one staple abroad. This was generally fixed at Calais. The object of most of these regulations as to the staple was to keep up the price of wool, and to make foreigners pay dearly for it. If this object was attained, the English cloth manufacturers probably suffered most.

Imports. The Wine Trade.

The regulations of Edward III., for the importation of wine from Gascony, tended to favour the foreign merchant at the expense of the Englishman. English merchants were not to "forestall" wine in Gascony, or to buy it up before the vintage and the time of the common passage (*i.e.*, when ships sailed together in a convoy), and were not to charge too high prices. English merchants could only ship to two special ports, but the Gascon trader could ship to any port (1355). Tuns and pipes were to be gauged so that the purchaser might be sure to obtain full quantity. In 1363 the gauging of the wine was directed in Bordeaux as well as in England.

A number of mediæval statutes were framed with the useless effort to keep down or regulate prices. "Forestalling" or "engrossing" goods was thought to be an evil, and was prohibited by various Acts directed against the "middleman" and the speculator. Thus a statute, passed in 1397, relating to the great herring fair at Yarmouth, fixed the price of herrings at 40s. the last, above which no one should buy for the purpose of curing fish. The rate of profit on re-selling was defined, and the market was only to be held in broad daylight. This statute failed to fulfil its purpose of benefiting the consumer, as the fishermen were often unable to attend the market while it was open. A statute of 1361 gave the fishers the right to sell freely whenever they came to port, and prohibited anyone interfering with another buyer while he was bargaining.

The agricultural crisis, caused by the Black Death (see p. 80), led to a curious but ineffective legislative attempt to lower the rate of wages and to compel labourers to work. A royal proclamation in 1349, confirmed by the subsequent Statutes of Labourers (1351, 1357, and 1360) directed that every man or woman, bond or free, able in body and within the age of three score years, not having his own whereof he might live, nor land of his own by which he might occupy himself, and not serving any other, should be bound to serve the employer who should require him to do so at the wages which were accustomed to be given in the year before the Black Death, and that anyone who neglected to serve when required should be committed to gaol. The statutes extended to town as well as country, and included not only mowers, reapers, and threshers, but also carpenters, masons, plasterers, tilers, carters, shoemakers, saddlers, skinnners, tailors, and smiths. The price of corn and other victuals was, at the same time, fixed. The severity of the punishments inflicted by the statute of 1360 is probably a sign that the other statutes failed to accomplish their object. By this statute those who broke

this agreement, and went into another country, were to be outlawed, pursued, and branded, and towns that harboured runaways were to be fined £10.

Beginning of the Mercantile System.

The policy of Edward III., which tended to favour foreign trade and to make commodities cheap, was reversed in the reign of Richard II., when the influence of the great London merchants began to make itself felt in Parliament. In his reign we see the beginning of what is known as the mercantile or protectionist system, which, down to the 18th century, was the principle that dominated English commercial policy. The chief objects of the mercantile system were to encourage natives, to discourage foreigners, to encourage tillage, to develop shipping, and to amass treasures. The leading idea of the system was to maintain and increase the national strength, and to subordinate the interests of the consumer to the attainment of this end.

Aliens.

The London merchants succeeded, in 1392, in getting a statute passed excluding aliens from the retail and internal trade of the country. A statute of that year provided that no merchant stranger alien should sell or buy merchandise, within the realms, with another strange merchant alien to sell again, or should sell to retail within the realm, or put to sale any manner of wares or merchandise, except "livings and victuals," that aliens should sell wines by whole vessels and "spicery" by whole vessels and bales, and in no other manner; and that no manner of "spicery" after that it was brought within the realm should be carried out of the same realm by alien or denizen upon pains of forfeiture of the same.

Navigation Act.

The wish to discourage the alien and to encourage English shipping prompted the first Navigation Act of 1381, the object of which was to increase the navy of England, which was "greatly minished." The statute provides that none of the king's liege people should ship any merchandise in going out or coming within the realm of England in any port, but only in ships of the king's allegiance. It has been already pointed out that the number of English ships was so few that the Act had to be amended in the next year by providing that English ships when "able and sufficient" should be "preferred before all other ships."

•

Amassing of Treasure.

One of the complaints of the time of Richard II. was that the land was without money owing to the exportation of English gold and silver. The payments made to the Pope of Rome were in particular resented as a drain on the resources of the country, for which no return was received. To remedy the evil, a statute of 1381 prohibited the exportation of gold or silver, except for the wages of Calais and other fortresses beyond the sea, while the statute of *Praemunire* (1393), prohibited the procuring of papal bulls.

Encouragement of Tillage.

The scarcity of agricultural labour still remained a difficulty which Parliament attempted to cope with. A statute of 1388, after reciting that servants and labourers would not serve "without outrageous and excessive hire," fixed the wages for different labourers and ordained penalties for those who gave more than the regulation wage, and provided that "artificers, their servants and apprentices, should be compelled to serve in harvest to cut, gather and bring in

its corn." The migration of the agricultural labourer from the country to the town was a matter of complaint in the 14th, as it is in the 20th century. Those who had served in agriculture till twelve years of age were prohibited from being apprenticed to a trade in a town. For the further encouragement of agriculture, the exportation of corn was encouraged, so that the farmer might have a good market for his corn, and its importation was restricted. Richard II. "granted licence to all his liege people of this realm of England to ship and carry corn out of the said realm to what parts that please them except to his enemies." The reign of Richard II. saw the beginning of the Corn Laws, passed for the purpose of keeping up the price of corn; later on the Parliament of 1463 prohibited the importation of foreign-grown corn, when the price of wheat at the port to which it was brought did not exceed 6s. 8d. the quarter. The object of this prohibition, as of the subsequent Corn Laws, was to encourage farming by raising the price of corn.

The encouragement of English industry, and the discouragement of the foreigner, were the object of various statutes passed in the reigns of the Lancastrian and Yorkist sovereigns. To protect the English workers in silk, the importation of manufactured silken goods was forbidden by statutes of 1454, 1463 and 1483. The statute of 1483 prohibited the importation of from sixty to seventy finished articles of different kinds, from dripping-pans and scissors to ribbons and playing-cards. By a statute of Richard III. (1484), aliens were restricted from exercising handicrafts, and were compelled to sell their goods in gross and within eight months from landing. They were only to take the king's subjects for their servants; signs of the beginning of a trade in printed books are to be seen in an exception made in favour of "any artificer or merchant stranger bringing into the realm or selling by retail any manner of books written or

printed or of any writer, lymper (painter), binder or printer of such books as he hath or shall have to sell by way of merchandise." By a statute of Henry IV. (1403), aliens who brought goods into England were required to spend the whole of their moneys, save the necessary expenses, in the commodities of the realm. A statute of 1453 required aliens to give sureties that they would not export gold. Edward IV. made the exportation of bullion felony in order to avert "the impoverishment of the realm and final destruction of treasure of the same realm"; statutes of this kind were probably little more than a dead letter. There seems to have been a great scarcity of the precious metals during the Middle Ages, and in the 15th century, when commerce was flourishing and wealth increasing, gold and silver were extravagantly used in dress and ornament. More gold and silver were constantly being required, and yet no fresh source of supply was as yet available. The result was a kind of famine of gold and silver, which did not abate till the discovery of America added enormous quantities to the supply.

Cloth Manufacture.

A great number of statutes were passed to regulate and foster the cloth trade. One of the most important is a statute of 1464, which defined the size of cloths, provided for the sealing of good cloths, imperfect cloths and half cloths, and the regulation of the trade by a number of royal officers. From this statute it appears that the clothiers delivered the wool to the spinners, carders and other labourers by weight, and paid them for the wool when it was finished. As complaints were made that the clothiers forced the labourers to take part of their wages in "pins, girdles and other unprofitable wares," the statute directed that payment should be made in true and lawful money. This statute is the earliest of the "Truck Acts" (Cunningham, 391), *i.e.*, acts intended to prevent the payment of wages in any other way than in

current coin. Edward IV. re-arranged the regulations for the staple, with the intent that "sufficient plenty of wool might continually abide and remain in the realm and might serve for the occupation of cloth-making" (1463). He prohibited any bargains for the clip of wool before the sheep were shorn in the counties where the clothing trade was chiefly carried on (1464). To keep the whole of the process of manufacture in the country, the exportation of "thrums" and "woollen yarns" was prohibited (1429). The statute of 1463 fixed Calais as the staple or only market to which wool could be shipped from England.

Mineral Wealth.

During the Middle Ages tin and lead were the most valuable mineral products of the English, and were articles of export; from the lead ores silver was obtained. Iron was worked from times of remote antiquity in Flintshire, and in the Forest of Dean in Gloucestershire, and in later times in Sussex and Hampshire; it was smelted by charcoal. Pit-coal, or sea-coal, as it was called to distinguish it from charcoal, to which the name of coal is often given, was worked in Northumberland, Staffordshire, Shropshire, and in the Forest of Dean, and used there as fuel; it seems to have been used as fuel outside the districts where it was mined. Salt was worked in Worcestershire at Droitwich, and in Cheshire, and was a most important article of trade.

Coinage.

The coins which were first issued in England were the silver penny ($\frac{1}{240}$ of the silver pound of 5,400 grains), halfpenny and farthing (p. 71). Edward I. coined the silver groat (4d., p. 73). Edward III. was the first English king to institute a regular gold currency. He issued gold nobles (6s. 8d.), half-nobles and quarter-nobles; (see gold noble of Richard II., p. 76); angels (6s. 8d., p. 79), and half-angels of gold and rose nobles or rials (10s.) were coined in 1465. Shillings and sovereigns (see p. 80), did not appear till Henry

VII.'s reign. The "mark," which is often mentioned in the Middle Ages, was not a coin but a money of account, *i.e.*, a name for $\frac{3}{4}$ of a pound, *i.e.*, 13s. 4d.

Summary.

The accession of Henry VII. (1485) may be conveniently regarded as the close of the mediæval period in England. If we contrast England at the accession of Henry VII. with England at the time of the Domesday Survey four centuries before, we shall find that the commercial progress of the nation had been considerable. From being purely an agricultural and wool exporting country, England had become a cloth manufacturing and cloth exporting country. It was engaged in a considerable maritime trade, and was beginning to compete with foreign merchants on their own ground. The two Universities of Oxford and Cambridge, the Inns of Court for the education of barristers, and two of the greatest public schools, Eton and Winchester, had been founded. Villenage was rapidly becoming extinct; parliamentary institutions had grown, and the common law, a system of native origin, had been developed by the English lawyers, who were proud to contrast the liberty of the English people with the despotic government of their neighbours, especially of the French.

The other nations of the British Isles had in the same period made but little advance. Wales, which had been conquered and annexed by Edward I., for a long time remained turbulent and disorderly. Ireland had relapsed into a state of anarchy. The English sovereigns, who from 1172 onwards were "lords of Ireland," had little actual control over the country beyond the Pale, or English dominions round Dublin. The Wars of the Roses, by engaging the English in a struggle at home, increased the confusion in Ireland, the only hope for which lay in a strong Government, which, as yet, the English had not been able to establish there. The chief products of Ireland in the 15th century were hides, fish, woollen and linen

cloth, and furs and skins of the otter, squirrel, hare, fox, etc. Scotland, which had been conquered by Edward I., recovered its independence in the reign of Edward II.; it had made some progress in comparison with Ireland, but for long remained in a backward condition. The Scotch trade in the 15th century was chiefly with Flanders; the Scots exported woollfells, hides and wool, and imported haberdashers' ware and even such articles as cartwheels and wheelbarrows. The Scotch kings, like the French, whom they tried to imitate, had powers which were in theory very large, but they exercised little effective control over the nobles, who carried on private war with one another, and often tyrannised over the monarch himself. In England, on the other hand, the power of the sovereign was restrained by the constitution, but his effective authority was considerable. The nation was united, and the anarchy of the nobles kept in check, except during such periods as the Wars of the Roses, when the royal power was in hands too weak to rule.

The progress of England in the four centuries between the Normans and the Tudors, considerable as it was, was but slight compared with the progress of England in the four centuries that followed the accession of Henry VII. It was during the four centuries, from the 16th to the 19th, that the English came to the front in commerce and colonising. Before they had made but little conspicuous advance in commerce or exploration. The spirit of enterprise and adventure and of invention, for which the English have since been remarkable, lay dormant all through the mediæval period, and until the conditions of commerce had changed and oceanic navigation took the place of navigation in the narrow seas. All through the Middle Ages, and until America and the Cape of Good Hope route were discovered, England was situated, as it were, on one of the side-streams of commerce; the change of commercial routes in the 16th century placed her on the main stream (Cunningham, 419).

In the course of the 13th century when the Mongol Empire was at the height of its power and its dominions extended from the Danube to China, Central Asia was more accessible to European travel than it had been before or was for centuries afterwards. The Mongol emperors were hostile to the Moslem powers and were not unfavourable to Christianity and to an alliance with the Western powers against the Moslems. Frequent diplomatic intercourse took place between Europe and the Mongol emperors. Several remarkable travels were undertaken by Europeans through Central Asia, and the records of these travels have been preserved. In 1245 the Pope sent Friar John de Plano Carpini on an embassy to the Mongols; Friar John set out from Lyons and travelled through Germany and Bohemia to Kiew on the Dnieper, passed through southern Russia, crossed the Volga, entered Asia and reached the Sir-Darya river, where he had an audience with the Mongol Emperor, Kuyuk Khan. Friar John returned to Lyons in 1247. In 1253 another Friar, William de Rubruquis, travelled with letters from St. Louis of France to the Mongol Emperor from Constantinople, across the Black Sea to the Crimea, and thence by land through Russia and Central Asia to Karakorum (south of Lake Baikal) where he had an audience with the Mongol Emperor, Mangu Khan; the traveller then returned back through Asia Minor to Tripoli in Syria. About 1260 two Venetian merchants, Nicolo and Maffeo Polo, who were trading at Constantinople, left the Bosphorus, crossed the Black Sea and landed in the Crimea; they then travelled to the Volga and to Bokhara and thence passed through Central Asia to the court of Kublai Khan, the greatest of the Mongol Emperors, near Peking; they then returned to Venice by way of Asia Minor with letters from Kublai to the Pope. About 1271 the two brothers started on a second journey to the Mongol Court, taking with them Nicolo's young son, Marco, who has left an account of their travels and a description of the countries through which they passed and of neighbouring countries which they did not visit.

They reached Kublai's Court about 1275, and resided there for seventeen years; Marco Polo entered the service of the Emperor and visited many parts of China. In 1292 the travellers started back home by sea, visiting Cochin China, Sumatra, Ceylon, the Coromandel and Malabar coasts of India and arriving at Ormuz on the Persian Gulf; they then travelled overland to Trebizond, and returned by sea to Venice, which they reached in 1295. In 1291 Edward I., of England, sent an embassy under Galfridus de Langele to Arghun Khan, the sub-ruler of Persia under the Mongol Emperor; the embassy was absent about two years and went via Trebizond and Armenia to Tabriz in Persia. About 1316 Friar Odoric of Pordenone left Europe, travelled to Trebizond and the Persian Gulf, from whence he sailed to India and afterwards visited Sumatra, Java, Cochin China, Canton and Peking and returned by land (1329-30) through Tibet to Europe (Beazley, "Dawn of Modern Geography," III., 250-287). The record of his adventures was with other travellers' tales largely used to make up the fabulous travels of the so-called Sir John Mandeville.

In the course of the 14th century the Mongol Empire broke up. The Mongols were expelled from China in 1368-70. The western Mongols adopted the Moslem religion, and on the break-up of the Mongol Empire, after the death of Timur (1405), Central Asia was closed to European travel. But some of the European states had already begun to enter on the course of maritime voyages which led eventually to the discovery of America, and the sea-route round the south of Africa and to India. In 1270 a Genoese fleet rediscovered the islands of the Canaries. In 1291 two Genoese, Tedisio Doria and Ugolino Vivaldo equipped two galleys in which Ugolino and his brother Guido set out on a voyage by sea westward through the straits of Gibraltar to go by sea to India, but never returned. The Canaries, Azores and Madeira islands were explored and appear marked on the Laurentian Portolan, or sailor's map, of 1351. In this map the coasts of the Mediterranean, the Black Sea, and the sea of Azov were

described with remarkable accuracy, and Africa is represented as surrounded by sea on the west, south and east.

The Norsemen of the 10th century had reached Greenland and the coast of North America, and settlements had been made in Greenland, but the exploration of North America had not been followed up, and the existence of a continent to the west of the Atlantic remained a vague tradition. It was, however, generally believed that Cathay (China) could be reached by sailing to the west. In 1840, two ships set out from Bristol in quest of land to the west, but returned in two months without effecting any discovery. In the early part of the 15th century, the Portuguese began to creep cautiously down the coast of Africa, and before the close of the century had discovered the route to India round the Cape of Good Hope, while Columbus, in the service of Spain, and John Cabot, in the service of England, had crossed the Atlantic and reached America. With these discoveries the Middle Ages come to an end, and modern commercial history begins. With the capture of Constantinople by the Ottoman Turks, in 1453, the last relic of the Empire of Rome was destroyed. The extension of the Turkish conquests to Syria and Egypt cut off the Italian cities from their access to the East, and the centre of commercial power shifted and henceforth is no longer to be found in the Mediterranean but on the Atlantic coasts.

COMMERCIAL HISTORY.

PART II.

CHAPTER I.

Third Stage. Oceanic Navigation.

The Tudors—Discovery and Exploration.

New Discoveries.

The third stage in commercial history, when oceanic voyages are commonly undertaken, was not reached by the European nations till the 16th century, after the discovery of America and of the Cape of Good Hope route to India, discoveries which produced momentous results, including the decay of the Italian and of many of the German cities, the transference of commercial supremacy to the nations of the Atlantic coasts, and the foundation of colonies.

The Renaissance.

Contemporaneous with the discovery of America was the great intellectual movement in Europe known as the Renaissance (*i.e.*, new birth), the most important feature of which was the revival of the study of classical Latin and Greek. The development of the art of printing at the close of the 15th and in the 16th centuries, by making possible the more rapid production of books and the multiplication of maps and charts, assisted the diffusion of knowledge and of new ideas.

The Reformation.

Connected with the Renaissance was the Reformation, or revolt of many of the western states of Europe from the authority of the Pope of Rome. Those Western European nations which had either not formed part of or had been little

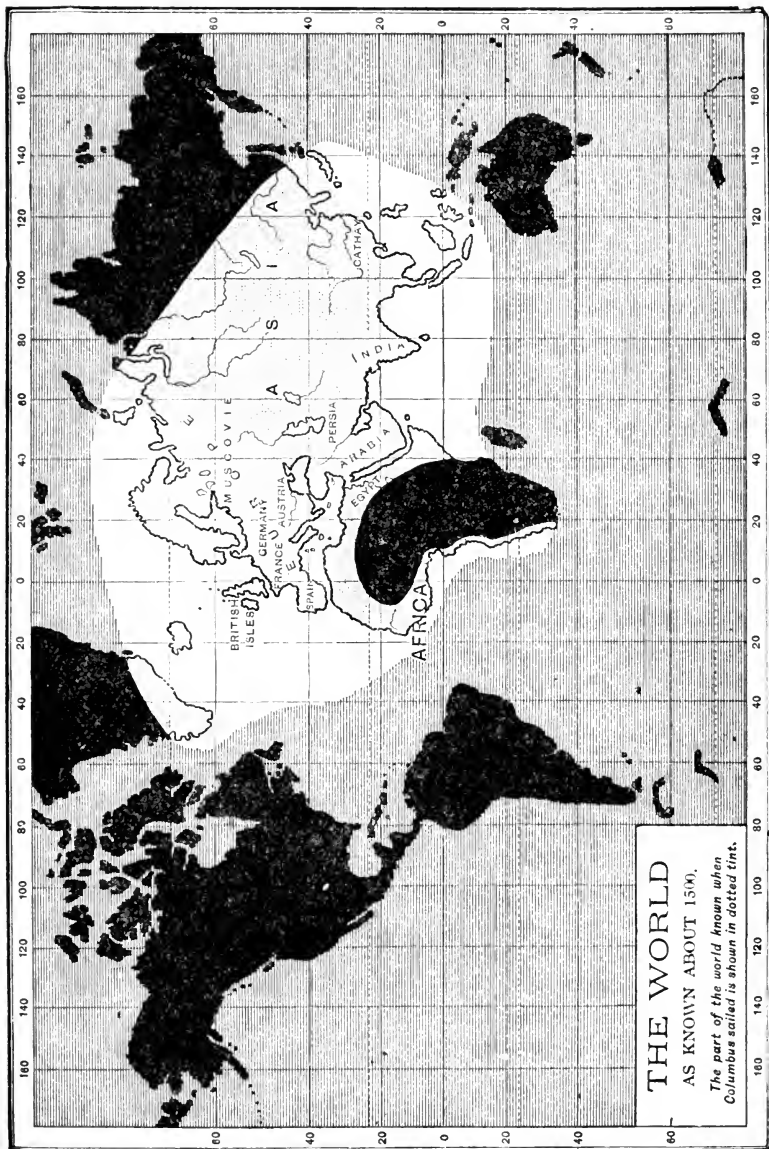
influenced by the Roman Empire, namely, England, Scotland, Holland, the Scandinavian nations, the northern states of Germany, and part of Switzerland, renounced their connection with the Papacy, "the ghost of the Roman Empire," and established national Protestant churches.

Colonial Enterprise.

Portugal and Spain were the first two states of modern Europe to found colonial empires, Portugal founding colonies in the East Indies, and Spain founding colonies in the West Indies and Central and Southern America; the colonial empire of the Portuguese in the East Indies rapidly rose and was in less than a century destroyed by the Dutch, who took their place and acquired the command of the trade of the East and the carrying trade of Europe; the Spanish colonial empire in America lasted till the 19th century. The English in the latter part of the 16th century began to encroach on and attack the Spanish colonies; in the beginning of the 17th century they began to make settlements in North America and in India. The Dutch, who founded settlements in the East and West Indies, North and South America, and South Africa, and the French, who colonised Canada and settled in India, became the most formidable rivals of the English in colonial enterprise.

Voyages of Discovery—The Portuguese.

Portugal at first took the lead in exploration for which its position on the Atlantic sea-coast gave it peculiar facilities, especially in regard to Africa. During the 15th century the Portuguese in their ships gradually crept down the African coast until they discovered the Cape of Good Hope route to India. The great promoter of geographical discoveries in Portugal was Prince Henry, called the Navigator (1394-1460), who set on foot a series of voyages of exploration of the African sea-board from 1418 onwards. The Portuguese reached Sierra Leone in 1461,



THE WORLD

AS KNOWN ABOUT 1500.

*The part of the world known when
Columbus sailed is shown in dotted tint.*

and crossed the Equator by 1472-3. In 1479, a treaty between Portugal and Castile reserved the right of traffic and discovery on the African coast to the Portuguese. In 1486, Bartholomew Diaz discovered the Cape of Good Hope and landed at Table Bay, but returned without going any further. Pedro de Covilhao was sent out to India by way of Egypt in 1487, visited the Malabar coast, and on his return gave a description of the East African sea-board as far as Madagascar. The voyage by sea from Europe to India was first accomplished by Vasco da Gama, who left Lisbon on the 8th July, 1497, and landed at Calicut, on the Malabar coast of India, on the 20th May, 1498. In the next year, Alvarez Cabral sailed by the same route and established a Portuguese "factory" or trading settlement on the Malabar coast. In 1503, pepper, one of the most highly prized commodities of the East, was brought to England in Portuguese ships, and the Venetian monopoly of the Eastern trade was thus destroyed. The Portuguese extended and consolidated their Indian possessions under the two great viceroys, Almeida and Albuquerque, the latter of whom in 1510 acquired Goa, which became the capital of the Portuguese Indies, and is now almost the only Portuguese possession in India. Before the middle of the 16th century, Portugal had gained the monopoly of the coast trade from the Persian gulf to Japan, as well as considerable possessions on the Malabar coast, Malacca in the modern Straits Settlements, Ormuz on the Persian Gulf, and settlements on both the East and West coasts of Africa. In 1500 Brazil in South America was discovered by Alvarez Cabral and added to the Portuguese dominions. The Indian trade was in the hands of the royal Portuguese fleets, sailing every year between Goa and Lisbon, which became the chief mart for the Eastern trade in Europe, and rapidly grew in importance and wealth; the distribution of the commodities of the East fell into the hands of English, Dutch and German merchants, who resorted to Lisbon for that purpose. The

Portuguese supremacy in the East rapidly declined, especially after 1580, when Portugal became a part of the dominions of the King of Spain, and the Portuguese possessions in the East were thus exposed to the attacks of the enemies of Spain; eventually the Portuguese were supplanted by their more pushing rivals, the Dutch and the English.

Spain. The Discovery of America.

Spain, which was united under one rule on the union of Castile and Aragon, in the persons of Ferdinand and Isabella, in 1479, was, like Portugal, favourably situated for purposes of exploration, but was unable to make much progress until it had cleared the country of the Moorish kingdoms, the last of which was overthrown in 1492. In that year Christopher Columbus, a Genoese mariner and cartographer of great practical experience, who had visited most of the countries which were within the range of European ships of the time, and had satisfied himself that there was land to the west of the then unexplored Atlantic Ocean, persuaded Queen Isabella to lend her support to his scheme for a voyage of discovery across the Atlantic. He had previously, without success, attempted to enlist the support of John II. of Portugal, and Henry VII. of England. On the 3rd August, 1492, Columbus set sail for his voyage across the Atlantic, from the harbour of Palos, with 120 persons in three ships, only one of which, the *Santa Maria*, on which he hoisted his flag, was decked (see figure 32); the other two were caravels, or light undecked vessels. He sighted land at the Bahamas on the 12th October, 1492; in this voyage he discovered Hispaniola (Hayti or San Domingo) and Cuba; the places so discovered became known as the West Indies and the people Indians, from the mistaken belief that the western coast of India had been reached. Columbus returned to Spain in 1493, in which year the Pope, Alexander VI., fixed the boundary between the newly acquired Portuguese and Spanish discoveries by a line,

which was afterwards extended by the Treaty of Tordesillas (1494) between Spain and Portugal to 370 leagues west of Cape de Verde Islands (Prescott, Ferdinand and Isabella, II., 165). Columbus set sail for his second Atlantic voyage on the 25th

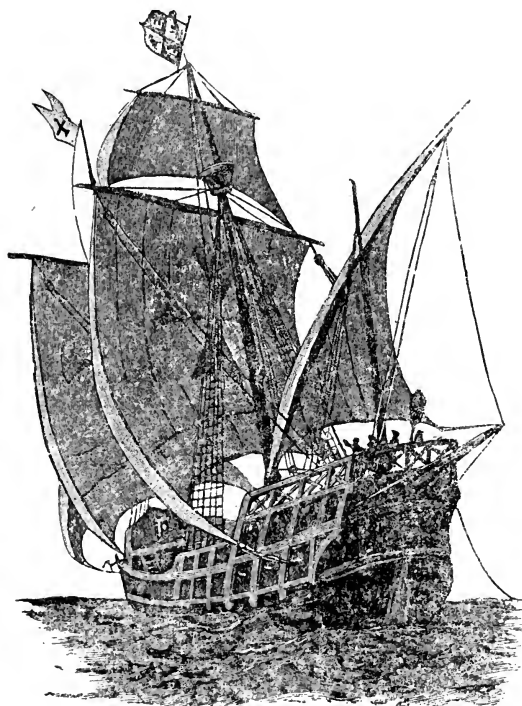


FIG. 32. SHIP OF COLUMBUS.

September, 1493, with 17 ships and 1,500 men; he took with him most of the common European domestic animals and fruits for naturalisation in the newly discovered lands; in the course of this voyage he discovered the islands of Guadeloupe and Jamaica. Returning from the voyage in 1496, he set sail on the 30th May, 1498, for a third voyage, in the course

of which he discovered the isle of Trinidad and for the first time reached the mainland of the American continent, namely, the coast of South America, or *Terra Firma*, as he called it, near the mouth of the Orinoco. His fourth and last voyage was in 1502, when he reached the coast of Central America. About the year 1507, the new continent received the name

of America, derived from *Americus Vespucius* (Amerigo Vespucci), a Florentine, who went as a merchant with Alonso de Ojeda in a Spanish expedition in 1499 to Venezuela, which Vespucci described in a letter entitled *Mundus Novus* (the New World), published in 1504. For a time the Spaniards were content with the occupation of Cuba, Hispaniola, Puerto Rico and Jamaica, and a few settlements on the mainland, but in 1513 Vasco Nuñez de Balboa crossed the Isthmus of Panama and discovered the Pacific Ocean, and Ponce de Leon in 1512 discovered Florida, which was settled in 1565. In 1517 Francisco Fernandez explored Yucatan and the Bay of Campeachy; in 1519, Hernando Cortez set out on an expedition, which ended in the conquest of Mexico in 1521; between 1519 and 1542, different Spanish explorers crossed North America from the Atlantic to the Pacific, and visited and explored the Mississippi, the Hudson, the Colorado, the Rio Grande del Norte, the Red River, the Bay of the Chesapeake, South Carolina, Florida, Georgia, and Alabama and Arkansas. In South America, Peru was conquered by Francisco Pizarro in 1531, and Chili by Almagro in 1541; Buenos Ayres, on the River Plate, was planted in 1535, abandoned and re-planted in 1580. The circumnavigation of the world was first accomplished by an expedition under the command of Ferdinand



FIG. 33. MAGELLAN'S SHIP VICTORIA THAT SAILED ROUND THE WORLD.

Magellan, a Portuguese in the service of Spain, who set out with five ships, including the *Victoria* (figure 33), on the 10th August, 1519, sailed round the south coast of America, discovered the straits that bear his name, entered the Pacific Ocean and sailed across to the Ladrones Islands; he discovered the Philippine Islands and was killed in a fight with the natives, but the *Victoria*, under the command of Captain John Sebastian del Cano, continued its course to Borneo, the Moluccas, Timor and Sumatra, and returning round the Cape of Good Hope, reached Spain on the 7th September, 1522. This expedition led to the addition of the Philippine Islands to the Spanish dominions, an arrangement being entered into between Spain and Portugal by which Spain obtained the Philippines, and her claim to the Moluccas was bought off by Portugal. These discoveries and conquests added enormously to the wealth of Spain, which became the leading state in Europe during the 16th century; it drew gold from Veragua and New Granada, and enormous supplies of silver from the mines of Mexico and Peru. Commercially, the new acquisitions were in the end of little advantage to Spain, owing to her foolish colonial policy. The trade with the Philippines was confined to Mexico. A great galleon, bearing the produce of the East, sailed every year from Manilla, in the Philippines, to Acapulco, in Mexico; to Acapulco and to Panama came also the treasure ships from Peru. The trade between Europe and the Spanish possessions in America was chiefly carried on through Vera Cruz, on the Gulf of Mexico, whither came an annual fleet from Cadiz, bearing European products. Most of the profits of this trade fell into the hands of foreigners, such as the English and Dutch, who brought to Cadiz the European merchandise needed by America; Spain exported little except wine and fruit. The limitation of the direct trade between Europe and the Spanish colonies led to a great smuggling trade with America, carried on by the English, Dutch and French, and raised the prices in America of

European products; the profits of the irregular direct trade were very great, and this trade was encouraged by the inhabitants of the Spanish possessions, who were thus able to purchase more cheaply the commodities which they desired.

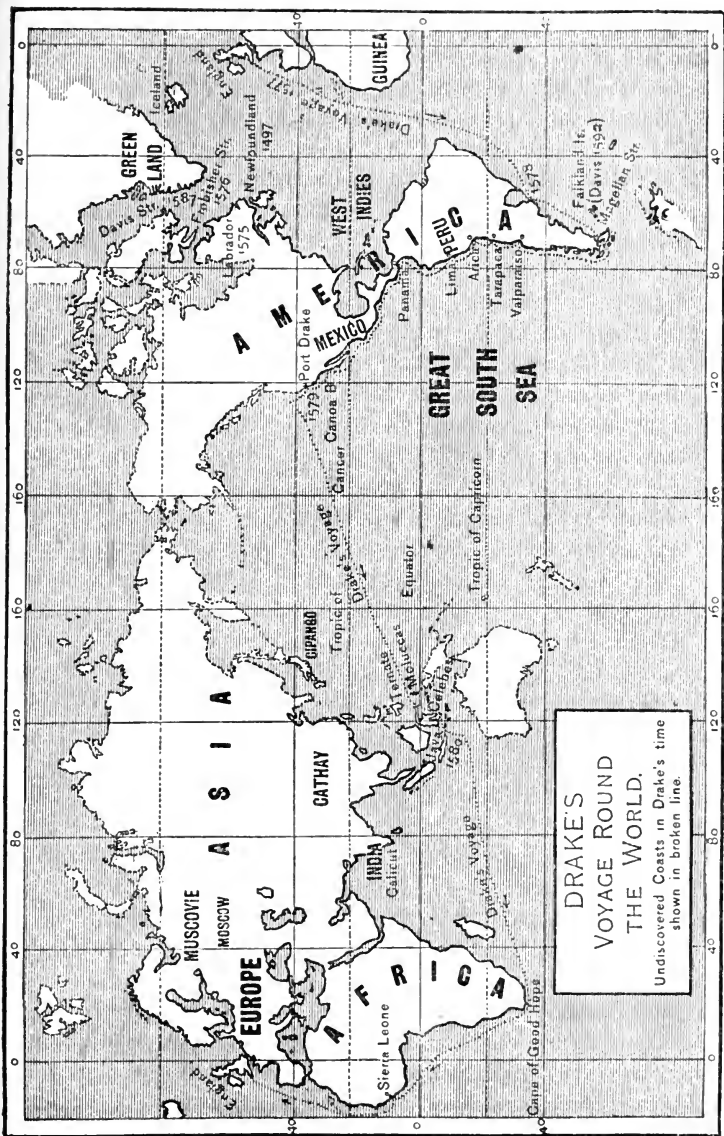


FIG. 34. DISCOVERY OF AMERICA BY THE CABOTS.

English Discoveries in America.

The merchants of Bristol, the second port in England during the Middle Ages after London, had opened up a direct trade with Iceland, and made, in the last part of the 15th century, some attempts to cross the Atlantic. In 1497 John Cabot, a Venetian citizen resident at Bristol, set out from Bristol with five ships, and, crossing the Atlantic, discovered the coast of Labrador in 1497; this is the first dis-

covery of the mainland of America after the voyages of the Norsemen in the 10th and 11th centuries, and precedes by a year Columbus's discovery of the mainland of South America; but Cabot's discovery did not immediately lead to any permanent settlement by the English. In or about 1498 either John or his son, Sebastian, discovered Newfoundland, but no settlement was made for some time afterwards. In 1502, 1527, and 1536, English ships again visited Newfoundland, the fisheries of which were, after 1527, much frequented by English, Norman, Breton, and Biscayan fishermen. The last half of the 16th century was a time of remarkable maritime activity in England, and witnessed the rise of a number of skilful sailors and explorers. Many of them combined exploration with smuggling and buccaneering, and forced their way on to the forbidden ground of the Spanish and Portuguese colonies. Before 1526 one Thomas Tison found his way to the West Indies, and resided there for some time as a "secret factor for English merchants." In 1530 and 1532, William Hawkins, the father of the celebrated Sir John, made a voyage to Brazil, which was again visited by an English ship in 1540. Sir John Hawkins, who, when a boy, had gone on voyages to the Canaries, and had learnt and taken to heart the lesson that "negroes were very good merchandise in Hispaniola and might easily be had on the coast of Guinea," sailed in 1562 to Sierra Leone, and began the Atlantic slave trade by taking on board 300 slaves and carrying them to Hispaniola, where he sold them in spite of all prohibitions; a second voyage in 1564 was equally successful; but in a third, in 1568, most of his ships were destroyed by the Spanish fleet in the harbour of San Juan de Ulloa. This led to reprisals on the part of the English. Sir Francis Drake, who had taken part in the expedition of 1568, and had shared in the loss, in 1572 sailed to Central America with two small ships, captured two Spanish towns and many Spanish ships, marched across the



isthmus of Panama, and was the first Englishman to look upon the Pacific Ocean, at the sight of which, it is said, he "besought Almighty God of His goodness to give him life and leave to sail once in an English ship on that sea." On his return he sacked another Spanish town, intercepted three caravans, and returned to Plymouth by the 9th August, 1573. John Oxenham, following in Drake's steps, sailed to Central America in 1575, crossed the isthmus of Panama, cut wood and made a pinnace with which he sailed on the Pacific, being the first Englishman to navigate that ocean; he took two Spanish prizes, but on his return was captured by the Spaniards and executed. In 1576, Andrew Barker sailed with ten ships from England to Honduras, where the English buccaneers subsequently founded a settlement for the cutting of logwood. In the next year Sir Francis Drake sailed on his great voyage in which he, first of all Englishmen, circumnavigated the world. Setting out on the 13th December, 1577, in the *Pelican*, or the *Golden Hind*, of 100 tons, the *Elizabeth*, of 80 tons, and three small vessels, he sailed down the coast of South America, through the Straits of Magellan into the Pacific Ocean; then up the coast of South America, where he plundered several Spanish ships and caravans, and after passing along the coast of Mexico to California, in search of a passage home by the north of America, and sailing north for some time, he turned south, crossed the Pacific, reached the Molucca Isles, and after touching at Ternate and Java, passed round the Cape of Good Hope and arrived, loaded with treasure, in England in October, 1580. The second English circumnavigator of the world was Thomas Cavendish, who left Plymouth in a fleet of three ships on the 21st July, 1586, passed through the Straits of Magellan, coasted along the American coast of the Pacific as far as California, captured a treasure ship from the Philippines, then crossed the Pacific himself and arrived at the Ladrone Islands, 3rd January, 1588. He stopped at the Philippines

for nine days, was well received there, and carried on an active trade with the inhabitants, made astronomical observations, studied the wind, weather and tides, and, returning by the Cape of Good Hope, arrived in England in September, 1588. In a letter to Lord Hunsdon, Chamberlain to Queen Elizabeth, written on the day of his arrival, Cavendish says: "I navigated to the islands of Philippines, hard upon the coast of China, of which country I have brought such intelligence as hath not been heard of in these parts, a country the stateliness and riches of which I fear to make a report lest I should not be credited. I sailed along the islands of Molucca where, among some of the heathen people, I was well entreated, and where our countrymen may have trade as freely as the Portugals, if they themselves will." Cavendish's advice and example were not followed by the English with any great promptness, and the result was that the Dutch anticipated the English in the East Indies.

English Attempts to Colonise America.

In 1583, Sir Humphrey Gilbert attempted to colonise Newfoundland. He sailed with five ships to St. John's, and annexed the country to the English dominions, but on his loss at sea on his return home, the colony was abandoned. Several other unsuccessful attempts to plant colonies in America were made by the English in the reign of Elizabeth. In 1584, Sir Walter Raleigh, Gilbert's step-brother, sent out an expedition under Philip Amadas and Arthur Barlow, who took possession of Roanoke island and the adjacent mainland, to which, as well as to all the sea-board from Newfoundland to Florida, the Queen gave the name of Virginia. In 1585, another expedition was sent out by Raleigh, under the command of his cousin, Sir Richard Grenville, to found a colony in Virginia, but the attempt failed, and in 1586 the colonists were brought home. Other expeditions were sent out in 1587 and 1589, but all attempts to found a permanent colony failed,

and the continuous settlement of Virginia does not begin till 1607. The chief immediate result of Raleigh's enterprise was the introduction of tobacco into England, and of the cultivation of the potato into Ireland, but Raleigh pointed out the way to the formation of "a greater England beyond the seas," and he may be regarded as one of the founders of the English Colonial Empire.

The North-West Passage.

The vain hope of finding a practicable passage for ships to India by the north-west, prompted a number of English seamen in the reign of Elizabeth to explore the extreme north of America. In 1527, John Rut attempted to discover this passage, reached as far as latitude 53° north, and returned by way of Newfoundland, Cape Breton and Maine. Martin Frobisher made three Arctic voyages, in the first of which (1576) he explored Greenland, and in the third (1578) Hudson's Bay. John Davys, the "father of Arctic discovery," in 1585 sailed to Greenland, and in 1586 and 1587 explored the straits called by his name. In 1602 George Waymouth seems to have entered Hudson Strait, but his crew mutinied and he was forced to return home.

The French in America.

During the 16th century, the French made several unsuccessful attempts to settle in North America.

The mariners of Brittany and Normandy frequented the Newfoundland fisheries from the early part of the 16th century. In 1534, Jacques Cartier, of St. Malo, sailed to Newfoundland and ascended the St. Lawrence; in 1535, he again ascended it and gave the name of Mont-Réal to the site where the city of Montreal was afterwards built; other attempts to found a French Colony on the St. Lawrence were made in 1540, in 1598, and in 1603, but no permanent settlement was made till 1609, when Quebec was founded by Champlain, and the colony of New France, or Canada as it is now called, was established. The French laid claims to parts

of Newfoundland, and their claims were a constant source of dispute between England and France and prevented the settlement of a permanent colony in that island.

English Exploration, Travel and Commerce in the Old World in the 15th Century.—Russian Trade.

Attempts were made to find a passage to India by the north-east as well as by the north-west, and were more fruitful of commercial results than the voyages to the north-west. In 1553, an expedition organized by Sebastian Cabot, set sail from England for the purpose of reaching Cathay (China) by the north-east, under the command of Sir Hugh Willoughby, with Richard Chancellor as pilot-general. Sir Hugh Willoughby was driven out of his course, and perished in Lapland. Chancellor made his way to the White Sea and landed at the mouth of the River Dwina, near the site of the town of Archangel. Here he was well received, and along with ten companions went by land to Moscow and visited the court of the Russian Czar, Ivan the Terrible, who granted freedom and facilities of trade to English ships. Russia at this time had no possessions on the Baltic coast or on the Black Sea, and her only outlet for maritime trade was by the White Sea. Chancellor returned to England in 1554, and as a result of his voyage, the Muscovy Company was incorporated in 1555 to trade with Russia. The northern coast of Russia was further explored by Stephen Borough, who first observed and named the North Cape, and in 1556 sailed past the North Cape, Lapland, Nova Zembla, and the land of the Samoyedes and turned back within 15 leagues of the River Petchora near to the extreme north-east point of Europe. Another English explorer, Jackman, reached the River Obi, but his ship was wrecked and he and his companions murdered by the Samoyedes (1581).

The formation of the Muscovy Company led to the first journey undertaken by an Englishman into Central Asia.

Anthony Jenkinson was in 1557 appointed by the Muscovy Company captain-general of their fleet, then sailing for Russia. Leaving Gravesend on the 12th May, 1557, he arrived at the mouth of the Dwina on the 12th July, proceeded to Kholmogori, where the Company had established a factory, and thence partly by boat and partly by sledge to Moscow, where he arrived on the 6th December; he was received by the Czar and stayed there till 23rd April, 1558, when he travelled by water to Nijni Novgorod and journeyed in the train of a Russian governor to Astrakhan at the mouth of the Volga (14th July); he was the first Englishman to cross the Caspian Sea (6th August), from the shores of which he journeyed by way of Khiva to Bokhara (23rd December), where he stayed two months; he then returned to Moscow and England. In 1561 he started on another journey for the purpose of opening communication with Persia; he went as before by way of Kholmogori, Moscow, and Astrakhan, and thence by way of the Caspian to Shabran and Shemakha; his negotiations with the Shah completely failed owing to the war that was raging between Persia and Turkey; he returned home in 1564. Jenkinson made a third journey to the Czar's court in 1566, and obtained a grant for the Muscovy Company of a monopoly of the White Sea trade. The Czar having recalled his grant, Jenkinson was again sent to Russia in 1571, and with great difficulty obtained the restoration of the company's privileges (Dict. of National Biography, *sub nom.* Jenkinson). The exports from England to Russia in the 16th century consisted of cloths, sugar, lead, tin, pewter, alum, copper, gunpowder, and military stores; the imports were furs, hides, hemp, flax, train-oil, tallow, pitch, tar, caviar, and masts. The Muscovy Company succeeded in opening up communications with Persia through two of their agents, Thos. Bannester and Geoffrey Duckett, who in 1571 obtained from the Shah of Persia a grant of freedom of traffic to the company's merchants.

Levant Trade.

By the beginning of the 16th century English merchants had begun to trade directly with the countries of the Eastern Mediterranean. Between 1511 and 1534 "divers tall ships of London," with other ships of Southampton and Bristol, had "an ordinary and usual trade" to Sicily, Candia, and Scio, while some went on to Cyprus, and even Tripoli and Beyrout in Syria. The commodities which these merchants exported from England were "kerseys" and other woollen goods and calf-skins, which had a good sale in Sicily; the commodities imported in return were silks, camlets, rhubarb, "malmsey, muscadel," and other wines, currants, sweet oil, cotton, Turkey carpets, galls, pepper, cinnamon, and other spices. As the merchants engaged in this trade employed not only English but also Candiot, Ragusan, Sicilian, Genoese, Venetian, Spanish, and Portuguese ships (Hakluyt II., 96), it would seem that the volume of English shipping was not then sufficient for the English trade of the time. In 1513 Baptista Justiniano, a Genoese, was appointed consul for English merchants in Scio and the Archipelago; in 1530 Dionysius Harris, an Englishman, was appointed consul in Candia. Several Englishmen settled in the Levant for the purpose of trading; William Eymes, a factor for several London merchants, resided at Scio from 1533 to 1544. The traveller Jenkinson was sent to the Levant in 1544 to be trained for a mercantile career. An Englishman, Gaspar Campion, lived in Scio for over twenty years, and in 1559 wrote a description of the trade there. In 1581 the Levant Company of London merchants was incorporated, and in 1582 the *Susan*, of London, sailed to Constantinople, having on board the first English ambassador to the Turkish court, William Harborne, who resided at Constantinople for six years, and returned overland in 1588. Until the beginning of the 19th century the English ambassador at Constantinople was always paid by the Levant Company, and one of his chief duties was the protection of the Company's trade.

Travels in the East.

Some traders of the Levant Co. were the first Englishmen known to have used the overland route by Mesopotamia down the Euphrates towards India. In 1583, Ralph Fitch, John Newbery, and John Eldred, left England for Aleppo. Eldred went overland across Syria down the Euphrates, and thence across the desert to Bussora, whence he returned to Aleppo. Newbery and Fitch went from Aleppo to Bussora, and thence to Ormuz on the Persian Gulf, where they were imprisoned by the Portuguese and sent to Goa ; they escaped from Goa, and visited Golconda, Agra, and Fatepore ; Newbery then left to go back to Europe but was never heard of again. Fitch went on to Bengal, Pegu and Malacca ; returning by way of Ceylon he visited the Malabar Coast, went overland from Ormuz to Aleppo, and returned to England in 1591, after an absence of eight years. Thomas Stevens sailed from Lisbon to Goa ; he is the first Englishman known to have reached India by the Cape of Good Hope route ; in a letter written in 1579 and sent to England, he described the voyage to India by sea. In 1600, John Mildenhall travelled from Constantinople through Armenia to Candahar and thence to India, where he visited Lahore and Agra and had an audience of the Great Mogul.

English Voyages to Africa.

As early as 1526 English merchants began to trade with the Canaries, the products of which, sugar, dye-wood, and kid skins, were regularly shipped to England. In 1547, a description of the Canaries was written by Thomas Nicholls, who had lived there for seven years. In 1551, Thomas Wyndham, "with a tall ship called the Lion of London," undertook the first English voyage for traffic to Morocco "in Barbary" ; in 1552, he again sailed to Morocco and thence to Santa Cruz and Teneriffe. In 1553, he reached the Gold Coast and was the first Englishman to round Cape Verde. In 1585, a company of London merchants trading with Barbary was formed, and in 1588 a similar company of merchants trading with the Guinea coast.

The East Indies.

Cavendish, the circumnavigator, on his return home in 1588, had pointed out the opportunities for trade between England and the East Indies. In October, 1589, a body of English merchants addressed a memorial to Queen Elizabeth asking for permission to send ships to trade with India. The permission was granted and three vessels under the command of Captain George Raymond sailed in 1591. Captain Raymond and his ship were lost after rounding the Cape, but James Lancaster, the second in command, in the *Edward Bonaventure* doubled Cape Comorin in May, 1592, visited parts of the Malay peninsula and captured several Portuguese ships; after cruising for some time in Eastern waters his crew mutinied and insisted on his returning home; he doubled the Cape of Good Hope on his return voyage in March, 1593, and crossed the Atlantic to the West Indies, where part of the crew made off with the ship and left him and others on shore; they were relieved by a French ship and reached England in May, 1594. In 1594 another expedition of three ships were fitted out and put under Lancaster's command but was sent not to the East Indies but on a buccaneering voyage to America. A fleet of three ships was sent out in 1596 under Benjamin Wood to trade with China, but was lost with all the persons on board. Meanwhile the Dutch had succeeded in gaining a footing in the East Indies. The success of the Dutch led to the formation in 1599 of a body of adventurers to trade with the East Indies; they became the East India Company which was incorporated on 31st Dec., 1600, and received a grant of the exclusive privilege of trading with the East Indies for 15 years. Its first fleet was commanded by Lancaster, with whom Captain Davys served as pilot. Sailing on the 20th April, 1601, from Torbay in the *Red Dragon* with three other ships, they on the 5th June, 1602, arrived at Acheen (Sumatra), where were ships "of almost all the nations of India that came thither to trade," and also of the Dutch. At Acheen, Lancaster was well received by the king of the country,

who had heard of the victories of the English over Spain; he cruised in the Straits of Malacca in quest of Portuguese ships, and captured one of 950 tons loaded with "packs of calicoes, pintadoes (*i.e.*, chintzes), and a great deal of other merchandise besides rice"; going on to Bantam, in Java, where he established a factory and left a number of men, he sent a pinnace to Moluccas to open up trade there, and returning with his ships loaded with pepper, cloves, cinnamon and gum lacquer, reached the Downs on the 11th September, 1603. The second voyage of the East India Company's ships to the East was in 1604 and the third in 1607; the profits of the first two voyages amounted to 95 per cent. on the capital subscribed; and of the third voyage 234 per cent. The articles exported from England to the East consisted of cloth, iron, lead, muskets, powder, sword blades, vermilion, drinking and looking glasses; the articles imported consisted of pepper, spices, rice, lacquer, calicoes, silks, inlaid, carved and painted cabinets, and porcelain.

The English and Dutch.

The Dutch were behind the English in entering on the work of exploration, but succeeded in forestalling them in trade with the East Indies. Holland formed, with the rest of the Netherlands, a part of the dominions of the Papist, Philip II. of Spain, who goaded the Protestant Dutch into revolt by his interference with their civil and religious liberties. The revolt led to a long war, from 1588 to 1609, at the end of which the Dutch acquired complete independence; one of the incidents of the war was the destruction of Antwerp (1585), the trade of which passed partly to Amsterdam, partly to London, and partly to Hamburg. The Dutch, who were skilful sailors, had profited by the Spanish and Portuguese discoveries, and sending their ships to Lisbon and Cadiz, distributed the products of the East and America over Europe, and took to Lisbon and Cadiz the products of Europe, which were carried in Spanish ships to America, and in Portuguese ships to the East Indies. Amsterdam grew in consequence

to be one of the richest cities in Europe. The war between Holland and Spain did not stop this trade; the Dutch, who have always had a keen eye to commercial interests, had no scruples about trading with their enemies, but after a time Philip II. put a stop to the trade and imprisoned the Dutch merchants in his dominions. This act of Philip did him considerable mischief, as it drove the Dutch to undertake a direct trade with the East Indies and to attack the Portuguese possessions there, which for a time formed a part of the dominions of Spain. A detailed account of the voyage to the Indies, and of the isles and coasts of the Indian Ocean, had been published in Holland in 1591 by Linschooten, a Dutchman, who had lived in India for thirteen years. The Dutch undertook their first voyage to the East Indies at the instance of Cornelius Houtman, who has been called the founder of the direct Dutch trade with India. Having visited Lisbon and gained information as to the commerce of India and the voyage there, he promoted a company in Amsterdam to discover distant lands, and four ships were sent to the East Indies on the 2nd April, 1595, with Houtman on board one as supercargo. In June, 1596, they arrived at Bantam, in the island of Java, and established a factory there. On 15th March, 1598, ten Dutch ships, under Houtman, with an Englishman, Captain John Davys, as pilot, sailed from Flushing, and in January, 1599, arrived at Acheen. Davys had an interview with the King of Acheen, the greater part of whose discourse was "about England and our Queen, whom he greatly admired for her war with the King of Spain." Another Dutch fleet of eight ships and 560 men set sail in May, 1598, and arrived at Bantam; four of the ships returned home at once loaded with pepper, while the other ships visited Amboyna, Banda and the Moluccas, where they established a factory, and whence they returned in 1600 loaded with spices. Dutch voyages to the East now followed in rapid succession. On the 21st August, 1598, another Dutch fleet of five ships, with another Englishman, William Adams, on board as pilot-

general, left the Texel, sailed through the Straits of Magellan and crossed the Pacific to Japan, where he arrived on the 19th April, 1600. Adams, who was the first Englishman that visited Japan, had an audience with the Emperor, for whom he built two ships, and who was so pleased with his skill that he kept him in Japan and would not let him return. On the 13th September, 1598, Oliver Noort, with an English pilot (Melis) who had been round the world with Cavendish, sailed from Holland through the Straits of Magellan and across the Pacific to the Ladrones Islands, Manilla and Borneo, returning to Amsterdam in 1601. In 1599, seven Dutch ships sailed to the East Indies, eight sailed in 1600, and thirteen in 1601. It will thus be seen that while the English visited the Indies before the Dutch, the latter had begun a brisk trade there before the arrival of Lancaster at Acheen in 1602. A bitter commercial rivalry arose between the English and the Dutch, who had hitherto been good friends, the English having helped the Dutch in their struggles for independence. At first the Dutch were much more enterprising and successful; the capital of the Dutch East India Company, which was founded in 1601, and united all the earlier companies, was more than half a million, while that of the English East India Company was at first only £72,000. The East Indian fleets of the Dutch often consisted of twelve, thirteen, and fourteen ships, while the English fleets did not number more than three or four. The Dutch were consequently able to spread their operations over a wider area; of the fourteen Dutch ships that sailed to India in 1602, some went to Acheen, some to Ceylon, some to the Moluccas and Bantam, and others to China; in 1604, the Dutch visited the Malabar Coast and made war on the Portuguese, whom they drove out of Amboyna and the Moluccas. Edmund Scot, one of the English whom Lancaster left behind at the factory in Bantam, in 1603, wrote a description of Java; in this description he complains of the "undermining practices of the

Hollanders against us," of the "sly and crafty proceedings of the Hollanders"; the Dutch usurped the name of Englishmen and caused the English and Dutch "to be confounded together," so that the English often suffered for the misdeeds of the Dutch, who, "by their uncivil carriage did procure for themselves far more trouble and enmity than they needed to have done, and made the Christian name very odious among these heathen"; the Dutch were "of so rude a behaviour and so apt to affront and abuse the country people," that the English settlers found it necessary to distinguish themselves from the Dutch by celebrating Queen Elizabeth's coronation day, and after the natives had learnt to make the distinction, "the children would run after us in the street shouting, 'The English are good and the Hollanders stark naught.'" The Dutch ships came in and out of Bantam so often that, "let the wind blow out of what quarter it would it brought some ship or other of theirs for pepper." When the second fleet of the English East India Company arrived at Bantam in December, 1604, they found a Dutch fleet in the roads, and in July of the next year the quarrels between the rival traders had become so acute that they came to blows and the Dutch were beaten. Of this English fleet, part went to Banda, and on its return found war going on between the Dutch and the Portuguese at Amboyna, the result of which was that the Dutch became "lords of Amboyna," and no trade could be done by the English there; the ships that went to the Moluccas found war raging there between the King of Ternate and the King of Tydore, the Portuguese supporting the latter and the Dutch the former; although the English rescued the King of Ternate from the Tydore galleys, the Dutch who had given the English a bad character and magnified their own country, prevented the King of Ternate from trading with the English and letting them have a factory in his island. The Dutch succeeded in getting possession of the Moluccas, Amboyna, the Banda Isles, and Ceylon. As

nutmegs at that time only grew in the Banda Isles, cloves only in the Moluccas and the islands round Amboyna, and cinnamon only in Ceylon, the Dutch thus obtained a complete monopoly of the spice trade. The Dutch were more enterprising and unscrupulous than the English; they tried every device to prevent their English rivals from gaining a footing in the spice islands. They also extended their trade to China, Siam and Japan. Two ships were sent to Japan in 1609 and an arrangement was made that they should send a ship there every year. In 1611 a Dutch ship arrived in Japan with a cargo of cloth, lead, ivory, damask, raw silk, and other commodities, and was "wondrously well received;" the "Hollanders have here an Indies of money" wrote the Englishman Adams whom the Emperor detained in Japan. When Richard Cocks, factor of the East India Company, sailed to Japan in 1613 to establish a factory, he found that the Dutch had already settled there three or four years before and had built a house which had cost them £2,500 and that "they dispersed themselves to look out for trade."

Trading Companies.

In the time of Elizabeth the combination of moneyed men in commercial enterprise on a large scale commenced in England. New companies were formed, viz.: the East India, Muscovy, Levant, Barbary and Africa companies, while the older companies such as the Eastland Company and the Merchant Adventurers extended their trade. The old company of Merchants of the Staple lost all their commercial importance on the capture of Calais, their trading centre, by the French in 1558. The Eastland Company of Merchants trading to Prussia exported cloths, lead, tin, pewter, hats and stockings; and imported deals, masts, timber, flax, hemp, linen, cordage, pitch, tallow, potash, wheat, iron, furs, beeswax and fish. The Merchant Adventurers, who obtained from Henry VII., Henry VIII., and Elizabeth, fresh privileges which secured to them the exclusive right of trading with the coasts

of Europe opposite to England from the Somme to Denmark, and who in 1550 employed 20,000 persons in Antwerp alone, exported cloths, lead, tin, oils, stockings, silks, fruits and Spanish wines, and imported linen, cambric, hollands, lawn, diaper, Rhenish wines, tapestries, hops, soap, wire, copper plates, brass, steel, iron, quicksilver, arms, gunpowder, hemp, alum, wax and salt.

The development of capitalist enterprise was assisted by the rise in prices in the last half of the 16th century, caused by the enormous increase in the supply of silver that followed on the opening up of the mines of Potosi by the Spaniards (Cunningham, II. 14). On the advice



FIG. 35. THREE FARTHING OF ELIZABETH.

of Sir Thomas Gresham, who formulated what is known as Gresham's Law, viz., that bad coin in circulation drives out the good, the coinage which had been greatly debased was purified under Elizabeth. The Royal Exchange for London merchants was founded (1568). The



FIG. 36. MILLED SIXPENCE OF ELIZABETH. The London Goldsmiths began to carry on the business of banking by lending money to individuals and to the Government.

Shipping.

The Mercantile System (see Part I., page 103) was the guiding principle of English policy from the days of Elizabeth to the 18th century. One of the chief features of this system was the encouragement of English shipping. Henry VIII. had done much in this direction by the incorporation of the Trinity House for supervising the lighting of the English coasts, and the control of pilots by the establishing of a dock-

yard at Deptford, by the building of larger vessels for the Navy, and by making a harbour of refuge at Dover. The Navigation Acts were more strictly enforced under Elizabeth, with the object of excluding foreigners from English trade and promoting the building of English ships. The privileges

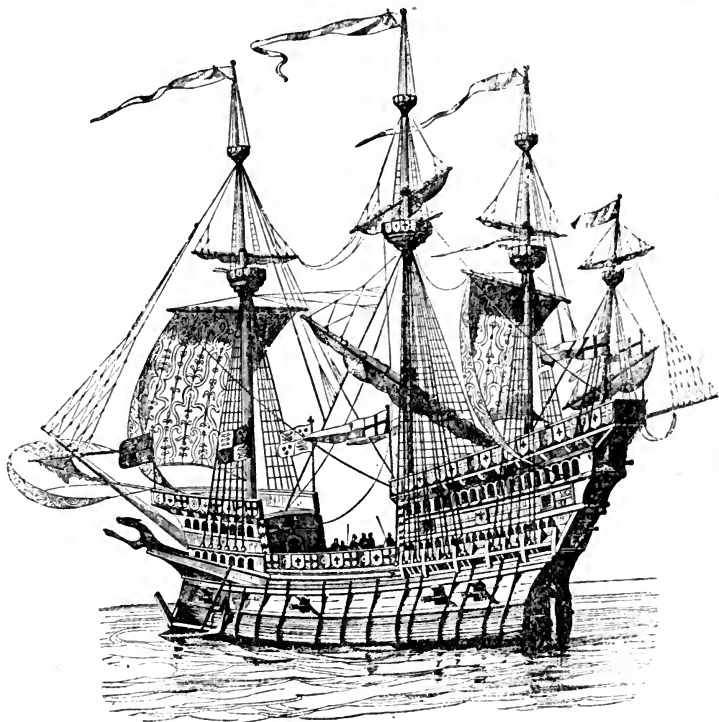


FIG. 37. MAN OF WAR, TIME OF HENRY VIII.

of the Hanse merchants in England were abrogated in 1578, and after 1587 Venetian galleys ceased to visit English shores. The encouragement of the fishing trade was promoted by legislation, which imposed a tax on imported fish and made compulsory the eating of fish and abstinence from meat on

three days of the week. The home fisheries were still in the hands of strangers, especially of the French, the Flemings, and the Dutch, and it was long before the English obtained the control over the fisheries on their own coasts.

The Navy was still but feeble. Most of the ships of the fleet that defeated the Spanish Armada of 1588 belonged to



FIG. 38. OLD ROYAL EXCHANGE.

private persons; only thirty-eight vessels carried the Queen's flag, and of these only thirteen were over 400 tons burden. In 1597, a ship of 800 tons was the largest vessel built in England. Still the reign of Elizabeth saw the beginning of the maritime greatness of England; the victories over Spain made her dreaded on the seas; in the engagements with the Armada the small English ships outmanœuvred and outsailed the huge Spanish galleons. Hawkins introduced improvements into the build of the ships of the Navy by lowering the huge castles at the bow and the stern, by increasing their length, giving them finer lines, and so making them faster, and a merchant

navy fitted for the most distant voyages was being formed. Marine insurance in London takes its rise in the 16th century, and is mentioned as early as 1512, and in 1601 a statute was passed for the appointing of commissioners to "determine causes on policies of insurance."

Agriculture.

Another feature of the Mercantile System was the encouragement of agriculture for the sake of increasing the population and power of the country.

The increase of enclosures was a matter of general complaint, and was one of the causes of Ket's rebellion in 1549. Two processes were included under the term of enclosing, one for the sake of sheep farming at the expense of tillage, the other for the improvement of tillage. The latter process marks the change from the open field or champion system, to the several field system, and was accomplished by enclosing fields with hedges, which were of use as providing shelter; this process marks the introduction of convertible husbandry, by which instead of the same land being always arable or always pasture, it could be changed from pasture to arable and arable to pasture.

Before the end of the 16th century the depression of agriculture that had lasted since the 14th century had ceased, and the 17th and 18th centuries were times of great prosperity for English farmers. Tillage was encouraged by Elizabethan legislation empowering the justices in each locality to settle how far the export of corn might be permitted at any time, and considerable quantities seem to have been exported in good seasons. Hops were introduced, and were cultivated with success. The cultivation of hemp was promoted by legislation. In "Queen Elizabeth's days, good husbandry began to take place."

Industry.

New centres of industry and new trades come into existence under the Tudors. Henry VII. "set the manufacture of

wool on foot" in several parts of the country, particularly at Wakefield, Leeds, and Halifax, in the West Riding of Yorkshire. Manchester is spoken of in 1542 as a flourishing centre of trade in linen and woollen manufactures, especially of Manchester cottons (which at that time meant a kind of woollen goods) and Manchester friezes; the forges and iron-works of Birmingham are spoken of in the reign of Elizabeth, under whom the Cutlers' Company at Sheffield was formed. To compete with the "russets, satins and fustians" of Naples, the Mayor and other merchants of Norwich brought strangers from abroad, made looms and introduced the art of making "russets and fustians" cheaper than those of Naples (Cunningham, *Middle Ages*, 467). The craft guilds received their death-blow in the reign of Edward VI., who confiscated their property on the ground that it was devoted to superstitious uses; the London companies survived and a few isolated guilds in one or two towns, but all the other guilds were dissolved; artisans were allowed to work where they pleased, whether they were free of a town or not (Cunningham, I., 469).

A number of new processes and industries were introduced; in 1565 a patent was granted for the making of brimstone, and a company was formed for making improvements in wire-drawing and other manufactures in the Forest of Dean. In the reign of Elizabeth knitted or woven stockings began to take the place of cloth stockings. In 1589 William Lee invented frames for the knitting of stockings. Starch was introduced from abroad in the end of the 16th century, and a patent was granted for its manufacture; another patent was granted for a new process of manufacturing salt. A paper mill was set up in 1588 at Dartford by a German, Spielmann, and attempts were made to manufacture glass and sail-cloth. Owing to the great increase in the population, the use of sea-coal became much commoner; the Newcastle trade in coal with London began to prosper, and the price of coal rose

rapidly from 2s. 6d. a chaldron (*i.e.*, 52½ to 53 cwt.) at Newcastle in 1536 to 10s. in 1581.

Foreign Artisans.

Religious persecutions abroad drove over to England a number of foreign artisans whose skill was of great service in the development of English manufactures. In 1561 Sandwich received twenty-five master workmen from Flanders with their families and servants, who exercised the industries of fishing and of making "saes bay or other cloth." In 1565 thirty Dutch and Walloon householders settled in Norwich and improved the trade of the district; they made the finer kinds of cloth which came to be known as the "new drapery," and practised linen-weaving and the making of gallipots. Other artisans settled in Maidstone and introduced the making of thread. The Flemings, who settled in Kent, introduced great improvements in gardening in that county. In 1570 another settlement of Flemings in Colchester introduced the making of needles and parchment, and the weaving of sackcloth and fine cloths called bays. Other settlements were at Stanford, Halstead, Yarmouth, Lynn, Dover, and London. A considerable number of French Huguenots came over in 1582 and practised the craft of silk-weaving in London, Coventry, and Canterbury.

Industrial Legislation.

The making of cloth and other English manufactures was still further encouraged by Elizabethan legislation. The importation of various finished goods from abroad, chiefly cutlery and small hardware goods, and the exportation of wool and undressed cloths were prohibited by Acts of Parliament. A curious piece of protectionist legislation is an Act of 1571 for the encouragement of the cappers' industry; by this Act, on every Sunday and holy day, every person of six years and upwards with certain exceptions, was to wear "one cap of wool fully wrought in England." Patents were granted to individuals for the regulation of industry, such as the

patent that was granted to Sir Edward Darcy in 1592 for the sealing and searching of leather throughout the whole of England, for which he exacted sometimes as much as one-third of the value of each skin. The granting of monopolies (*i.e.*, the sole right of selling certain commodities) was a great abuse in the reign of Elizabeth, and the subject of protests on the part of Parliament.

The most important industrial measure of Elizabeth's reign was the Statute of Apprentices of 1563, which was passed on the same lines as the Statute of Labourers. By this statute all persons who had not lands of the annual value of 40s., or £10 worth of personal property, or were not retained in the household of any noble or gentleman, or were not tenants of a farm holding, and were unmarried and of less than thirty years of age, were obliged to serve if called upon in the trade in which they had been brought up; all other persons of the labouring classes between the ages of twelve and sixty were to be compelled to serve "by the year with any person that keepeth husbandry, and will require any such person so to serve." Artisans in the chief employments (which included weaving and cloth-making) were to be hired for the year; the hours of labour of artificers and labourers were fixed, and the rates of wages were to be settled each year by the Justices; penalties were enacted against those who gave more wages than the rate settled. Seven years' apprenticeship was required before any person could "set up, occupy, use or exercise any craft, mystery, or occupation" then used or occupied. New crafts that sprang up afterwards were not within the provisions of the statute.

Poor Law.

The reign of Elizabeth also saw the first Poor Law (1601), which provided for the compulsory levying of rates for the relief of the destitute poor, and is still in force and is the basis of our system of poor relief.

Bankruptcy.

The beginning of bankruptcy legislation dates from the reigns of Henry VIII. and Elizabeth. An Act of 1571 provided that anyone who exercised his trade by way of bargaining, etc., and who fled the country or took sanctuary should be reputed bankrupt, and that his estate should be administered for the benefit of his creditors by commissioners appointed by the Lord Chancellor.



FIG. 39. ANCIENT CAUSEWAY NEAR WHITBY, YORKS.

Roads and Bridges.

Several statutes were passed in the Tudor reigns relating to the repairs of roads and bridges. By the Statute of Bridges (22 Henry VIII. c. 5), each county was declared bound to repair the bridges of public utility within its limits. By an Act of the reign of Philip and Mary, provision was

made for parishes electing surveyors to see to the maintenance and repair of the highways leading to market towns by compulsory labour. Little real progress, however, seems to have been made and the English roads long remained in a disgraceful condition, the cause of which seems to have been that each parish had to repair its own roads, and there was no provision for raising money for making new roads.

Religious Changes.

By the end of the 16th century, the majority of the people of England and Scotland had got rid of all connection with the Papacy, and had abandoned the doctrines which thenceforth became known as Roman Catholic. As Spain was the head of the Roman Catholic nations of Europe, England under Elizabeth, after her victories over Spain, was looked up to as the chief of the Protestant nations, and to her shores fled Protestant refugees from other countries such as Flanders and France. The hostility between England and Spain, based chiefly on colonial and commercial questions, became more embittered by religious differences. English sailors whom the Spaniards caught in the West Indies were thrown as heretics into the dungeons of the Inquisition, and stories of the tortures inflicted on their fellow countrymen inflamed the English to greater daring in their struggles against Spain. The emancipation of England from spiritual dependence on the Pope, which had always been resented by patriotic Englishmen as a slur on the national independence, not only stopped the flow of gold to Rome, but was connected with an extraordinary development of activity in literature, exploration and commerce. As the Reformation brought greater liberty of thought in religious matters, the English people became less disposed to submit to encroachments on political liberty, and with the growth of the moneyed class, the House of Commons began to take a bolder tone, and the 17th century saw the complete subjection of the English crown to constitutional restrictions.

CHAPTER II.

The Stuarts. Foundation of Colonies.

The Stuart period (1603-1714) is the period of colonising and of keen rivalry, first with the Dutch and then with the French.

American Colonies. Virginia.

The first English colony, excluding Newfoundland, where there were scattered English settlers, but no system of Government, was Virginia, the permanent settlement of which dates from the foundation of Jamestown in 1607. On December 19, 1606, three small ships under Captain Newport, with Captain John Smith on board, left the Thames, and in the next year arrived at the mouth of the Chesapeake and founded Jamestown. The earlier colonists suffered great privations, and were often on the point of abandoning the colony, but chiefly owing to the efforts of Captain Smith the difficulties were overcome, and a permanent settlement was made. In 1616 the cultivation of tobacco was introduced into the colony and became the basis of its subsequent prosperity. To encourage the cultivation of tobacco in Virginia its growth in England was forbidden. In 1619 a representative assembly was established in Virginia to manage the affairs of the colony, which acquired practical independence, a prominent feature of the English colonies in America.

New England.

North of Virginia were planted the New England colonies which derived a distinctly religious character from their Puritan founders, who had either been driven from England, or had left it from disapproval of the prevailing church settlement which, in their opinion, had not gone far enough in the direction of Protestantism. Of these the first was Plymouth, founded in 1620 by the Pilgrim Fathers, who sailed

in the Mayflower (figure 40), while Massachusetts, the most powerful of all the New England colonies, was founded in 1628, Connecticut in 1635, New Haven in 1638, Rhode Island about 1640. Maine was founded in 1638, but was afterwards joined to Massachusetts. New Hampshire became a separate colony in 1677 and included part of the territories claimed by Massachusetts. The New England colonies were exposed to dangers from the Indians in whose country they had settled, from the French who established themselves in Canada in 1609, in Nova Scotia (then called Acadia) in 1605, and in Louisiana in 1684, and from the Dutch who established a colony called New Netherland (now New York) in 1615. To protect themselves from their enemies, the New England colonies of Massachusetts, Plymouth, Connecticut and New Haven formed a confederation in 1643. The disturbances in England under Charles I. increased their independence, and the attempts made under Charles II. and James II. to bring them under the authority of the crown were abandoned at the Revolution, and the colonies obtained practical independence, the chief sign of their

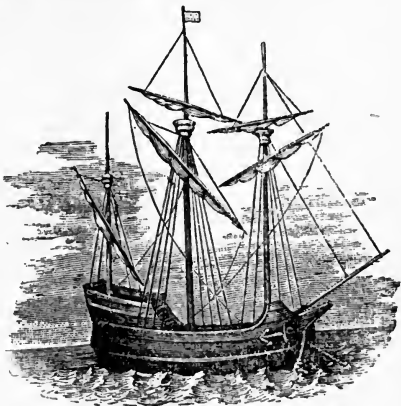


FIG. 40. THE MAYFLOWER.

dependence after the Revolution being the appointment of governors from England. Meanwhile, the English dominions in America had been increased by the settlement of Maryland by Roman Catholics under Lord Baltimore in 1629, the conquest of New Netherland from the Dutch in 1664, and its cession to the English in 1674, the settlement of New Jersey

in 1665, and of Pennsylvania, a Quaker colony, by William Penn in 1682. Delaware was originally founded by Swedish settlers, and afterwards was conquered by the Dutch and became a part of New York along with which it passed into the hands of the English; it finally became a separate colony in 1701. The country south of Virginia became the seat of three colonies, North Carolina founded about 1699, South Carolina founded about 1670, and Georgia founded in 1732 as an outpost against the Spaniards who occupied Florida. On the settlement of Georgia the whole of the west sea-board of America, from the river Kennebec to the border of Florida became English. Virginia, Massachusetts (to which Plymouth had been joined in 1692), Connecticut (which had absorbed New Haven in 1662), Rhode Island, New Hampshire, New York, New Jersey, Maryland, Pennsylvania, Delaware, North Carolina, South Carolina, and Georgia were the thirteen colonies which seceded from England in 1776, and formed the original United States of America. The commodities of the northern colonies were agricultural produce, corn, meat, cheese and timber, with which they supplied the West Indies. Rice was introduced before the close of the 17th century into South Carolina, the climate and soil of which were especially well suited for its growth. Thus agriculture was the basis of the prosperity of the United States as it was of that of the home country. The American plantations were of considerable importance to England, as affording a supply of timber and ship-building materials.

Other possessions of England in the New World acquired during the 17th century, were the Bermudas, a cluster of 300 islands, most of which are barren rocks, taken possession of by Sir George Somers, who was shipwrecked there on his way to Virginia in 1609; Barbadoes, colonised in 1614, which became a flourishing settlement, and a seat of the manufacture of sugar; and Jamaica, which was captured from the Spaniards by an expedition despatched by Cromwell in 1655 for the con-

quest of Cuba, and became another seat of the sugar industry. In the West Indies the English had to contend against the rivalry of the French and the Dutch. French buccaneers settled in the western part of the Island of St. Domingo, which in 1665 was taken under the protection of the French Government. St. Christopher's, Martinique, and Guadaloupe were settled by a French privateer, D'Esnambuc in 1625, and an English settlement was made in St. Christopher's about the same time. A French West India Company was formed in 1664, and for a time took over the administration of the French Islands. A Dutch West India Company was formed in 1621, and had a remarkable success for a while, as it conquered and governed for a time a part of Brazil. The possessions of the Dutch in the West Indies consisted of Surinam, Curacoa and St. Eustatia, where they cultivated sugar and tobacco. For the regular supply of labourers the Spaniards, Portuguese, French and English, were all dependent on negro slaves who were imported from Africa. In time the slave-trade fell chiefly into the hands of the English, who in 1713 obtained from the Spaniards the benefit of the *Assiento* or contract for the sole supply of negro slaves to the Spanish colonies. In 1660 a Committee of the Privy Council was established in imitation of a similar body instituted by Cromwell to obtain information as to imports and exports and to improve trade. A "Council of Foreign Plantations" was instituted in the same year and in 1672 the two bodies were united under the name of the Council of Trade and Plantations. This was the germ of the Board of Trade which was constituted by an Order in Council in 1786.

India.

The trade and operations of the East India Company were considerably extended in the 17th century. Bombay was granted to the company in 1668 by Charles II., their power

began to spread in Hindustan, and they traded with Persia, China, Siam and Japan. In 1667-8 they began to import tea from China to England. In 1673 the island of St. Helena was granted to them by the Crown. A French East India Company was formed in 1664, and the rivalries of the Europeans in India with one another led to the English East India Company taking sides in the quarrels of native princes. In this way the East India Company became a great political power as well as a commercial company. It built fleets, raised armies, made war, and acquired territory.

Rivalry with the Dutch. The Navigation Acts.

At the beginning of the 17th century the Dutch had acquired almost a monopoly of the European carrying trade. Even the fisheries off the English coasts were mainly in their hands. They had almost a monopoly of the East Indian spice trade. The East India Company had factories in many islands of the East Indies, but the Dutch threw every obstacle in the way of their trade and there were constant disputes between the two nations. These disputes culminated in the Massacre of Amboyna (1623) when the Dutch arrested the English settlers at Amboyna on a false charge of conspiracy and after having tortured them with great cruelty put most of them to death. This had the effect of driving the English from the spice islands. For the purpose of crippling Dutch trade Cromwell enacted the Navigation Act of 1651, which was re-enacted in 1660 and supplemented by later Acts. The Acts, as they were in force when they were repealed, were to the following effect:—(1) Certain enumerated articles of European produce could only be imported for consumption into England in English ships, or in ships of the country of which the goods were the produce, or of the country from which they were usually imported; (2) No produce of Asia, Africa, or America could be imported for consumption into England from Europe in any ships; such produce could only be imported from any other place in

English ships or in ships of the country of which the goods were the produce and from which they were usually imported; (3) No goods could be carried coastwise from one part of England to another except in English ships; (4) No goods could be exported from England to any of the English possessions in Asia, Africa, or America (with some exceptions with regard to India) in any but English ships; (5) No goods could be carried from any one of the English possessions in Asia, Africa, or America to another, nor from any part of such possessions to another in any but English ships; (6) No goods could be imported into any English possessions in Asia, Africa, or America in any but English ships or ships of the country of which the goods were the produce, provided also that such ships brought the goods from that country; (7) No foreign ships were allowed to trade with any of the English possessions unless specially authorised by an Order in Council. The restrictions respecting the trade of Europe only applied to imports; foreign ships might export any goods from England anywhere, except to English possessions in Asia, Africa, or America (Lindsay's History of Merchant Shipping, I. 107).

The Navigation Acts were protectionist measures, and were in some respects prejudicial to English commerce; they increased the cost of ship-building and restricted the trade of the plantations and of Ireland, and raised prices to English consumers. But they probably succeeded in accomplishing the objects with which they were passed, namely, of increasing English shipping and of injuring the Dutch. The mercantile marine of England was doubled between 1666 and 1688. The Acts roused strong feeling in Holland, and commercial rivalry, aggravated by the Navigation Acts, led to the Dutch wars under the Commonwealth and Charles II. The English got their own trade into their own hands, deprived the Dutch of much of their carrying trade and made England the emporium for the trade of the world (Cunningham,

II., 112). By the end of the 17th century the Dutch maritime power had begun to decline.

Ireland.

The Tudor sovereigns made intermittent attempts to settle Ireland. In 1494 Poyning's Law was passed prohibiting the Irish Parliament from passing any law which had not been previously approved by the English Privy Council. In 1541 an Act of the Irish Parliament conferred on Henry VIII. the title of King of Ireland. Under Elizabeth efforts were made to plant the country with English settlers, and to introduce good order and a firm government. The most successful settlement in Ireland was the plantation of Ulster, in the reign of James I.; the six counties of Ulster, which had become forfeited by the rebellion of the O'Neills, were divided into parishes of from 1,000 to 2,000 acres, with a church and glebe land assigned to each. English and Scotch settlers were invited to reside for five years and build substantial dwellings; market towns were erected, corporations founded for the settling of tradesmen and artificers, and free schools set up in each county. Ulster is now almost the only flourishing part of Ireland, and almost the only part where the majority of the people are loyal to the connection with England. The Earl of Strafford, while viceroy of Ireland, did much to develop the resources of the country. He encouraged the linen manufacture, the great industry of Ulster. With the fall of Strafford and the disturbances that followed the Irish rebellion of 1641, industrial development was checked. Pasture farming, the industry for which Ireland is best suited, was seriously injured by the prohibition in 1665 and 1680 of the importation into England of Irish cattle, sheep, swine, beef, pork, bacon, mutton, butter and cheese. The Irish graziers, being thus shut out from the English market, turned their attention to the growing of wool, which they exported to the continent. The cheapness of wool, and of living in Ireland, led to an immigration of clothiers from

England and elsewhere (about 1665), and to a development of the manufacture of cloth. This roused English commercial jealousy, and in 1699 an Act was passed which ruined the Irish woollen manufacture, by prohibiting the export of any Irish woollen manufactured goods to any country except England, and imposing a duty on Irish woollens exported to England.

Works for the smelting of iron by charcoal, a plentiful supply of which could be obtained from the forests which once abounded in Ireland, were started in different parts of the country; most of these iron works were destroyed in the rebellion of 1641, but some of them were afterwards re-started, and in 1672 there were 1,000 tons of iron made in Ireland; the destruction of the Irish forests led to the decay of this industry, Ireland having no adequate supply of coal to take the place of timber.

The Navy.

From the time of Elizabeth onwards greater attention was devoted to the navy, and larger ships were built. James I. increased the number of the royal ships from thirteen to twenty-four. In 1610 the *Prince Royal*, the work of Phineas Pett, the king's master ship-builder, was launched; she was the largest ship that had been up to that time built in England, was of 1,400 tons burden and 114 feet long. In 1637 the *Sovereign of the Seas*, also the work of Phineas Pett, of 1,600 tons, was launched. The funds obtained by Charles I. through the unlawful exaction of ship-money were partly spent in building more ships, the necessity for which was urgent owing to the depredations of the Barbary pirates, who made the Mediterranean and even English coasts unsafe. The navy under Cromwell's administration made England feared and respected on the seas. Considerable attention was devoted to the navy after the Restoration by the Duke of York (afterwards James II.), but the corruption which was the

characteristic feature of the Stuart administration hindered its growth, and it was not till towards the close of the 17th century that the navy became really effective.

Merchant Shipping.

It is said that at the accession of James I. there were not above four merchant ships in England of 400 tons burden.

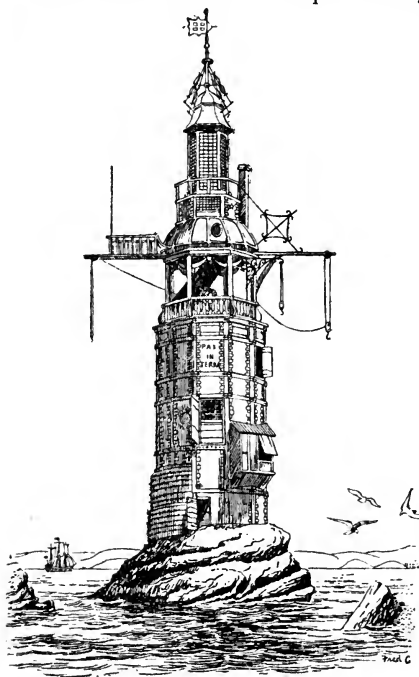


FIG. 41. WINSTANLEY'S
EDDYSTONE LIGHTHOUSE.

The East India Company began to build larger ships. In 1609 they had built the *Trade's Increase*, of 1,100 tons, the largest merchant ship that had ever been built in England. By the end of the century the merchant shipping interest had begun to prosper; in 1688 the clearances outwards from Great Britain amounted to 190,533 tons of English shipping and 95,267 tons of foreign shipping, and the gross value of the exports was £4,486,087. In 1699 the value of the exports had risen to £6,788,166. In 1660 the Commercial wet dock on the Surrey side of the Thames was opened

to shipping; in 1709 the construction of a wet dock at Liverpool was authorised. Some attempts were made to improve the haven of Yarmouth. The first lighthouse erected at sea on the English coasts was the one erected on the

Eddystone rock by a London merchant, named Winstanley, at the expense of the corporation of the Trinity House, in 1696; this lighthouse (see figure 41) was of wood, and, with all the persons in it, including Winstanley, was destroyed by a storm in 1703. John Rudyard, a London mercer, put up the second Eddystone lighthouse, also of wood, which was finished in 1709 and stood till 1755, when it was destroyed by fire.

Voyages of Discovery.

Henry Hudson in the service of the Muscovy Company sailed north in 1607 to discover a passage to India "across the pole;" he coasted along the eastern side of Greenland and explored part of Spitzbergen. In 1608 he was sent to discover a north-east passage, but got no further than Waigatz Strait. In 1609 in the service of the Dutch East India Company he again attempted to pass through Waigatz Strait, but his crew mutinied and compelled him to turn back; he then sailed across the Atlantic and explored part of the American coast and ascended the river which bears his name. In 1610, having left the Dutch service, he was sent to discover the north-west passage; he explored the strait and bay which are named after him and wintered in James Bay, but on his return voyage the next year his crew mutinied, and he was cut adrift in a small boat and never heard of again. Sir Thomas Button commanded an expedition sent out in 1612 to search for the north-west passage, fully explored the coasts of Hudson Bay, and found that there was no passage to the west in that direction. William Baffin in 1612 made a voyage of discovery to Greenland, and in 1613-14 was engaged under the Muscovy Company in the whale-fishery near Spitzbergen. In 1615 in the service of a company formed for the discovery of the north-west passage he explored Hudson Strait and Fox Channel, but found no outlet to the west. In 1616 he was sent on another voyage, passed

up Davis Strait and explored Baffin's Bay, Lancaster, and Smith's Sound, but failed to find any passage to the west. Baffin was the first to attempt to determine the longitude by lunar observation.

Discovery of Australia.

The existence of the *Australis Terra* (southern land) was known to the Portuguese in the 16th century. It is described in a book published in 1598 as separated from New Guinea by a narrow strait, and as seldom visited unless when sailors are driven there by storms. Queiros, a Portuguese sailor in the service of the Spanish Government of Peru, discovered a number of the islands of the Pacific, including the New Hebrides, in 1606. Torres, who served under him, parted company with him, and sailed through the strait which bears his name (1606). In the same year a Dutch vessel from Bantam touched at Cape York, at the extreme north of Australia. In 1616 Dirk Hartog sailed along the west coast of Australia (which the Dutch called New Holland) from lat. $26^{\circ} 30'$ to 23° south, and left near Shark's Bay a record of his visit engraved on a tin plate, which was found there in 1801. In 1618 Dutch vessels from Amboyna explored the gulf of Carpentaria, so-called from Peter Carpenter, the then governor of the Dutch East India Company, and gave the name of Arnheim land to the peninsula opposite to Cape York. In 1627 another Dutch ship sailed along the south coast from Cape Leeuwin. Abel Janssen Tasman (1600-1645), a Dutch navigator, left Bantam in 1642 on a voyage of discovery in the south seas; and on 24th November, 1642, discovered Van Diemen's Land, which he so named after his protector, Van Diemen, the Governor of the Dutch Indies, though it is now generally called Tasmania, after its discoverer; Tasman did not ascertain whether Van Diemen's Land was an island or a part of New Holland. He also

visited the Fiji Islands and New Zealand. No settlements were made in Australia till the English settled there towards the end of the 18th century.

William Dampier (1652-1715) passed part of his life in buccaneering and piracy in the West Indies, the Pacific, and the South Seas; he was the first Englishman who visited Australia, on the north-west coast of which he spent five weeks ashore in 1688. In 1698-9 he was sent by the English Government on an exploring voyage in the South Seas; he sighted Australia on the 26th July, 1699, and anchored in Shark's Bay (West Australia) and searched the coast, but found no convenient harbour or river; he then crossed over to Timor and discovered that New Britain, which he named, was an island. Dampier was celebrated for his surveys and charts, and his treatise on Winds was for a long time the best text-book on the subject.

Constitutional Struggles.

The disputes between the Parliament and the Stuart kings had their origin to some extent in economic causes. Owing to the rise of prices caused by the increase in the supply of the precious metals in the 16th century, the revenue of the Crown had become insufficient for its growing needs. The increase of trade and new industries afforded a temptation to stretch the royal prerogative, the taxing power of which had been clearly limited under the Plantagenet kings as regards the commodities which were then the objects of commerce, but was not so clearly defined in the case of new commodities. James I., soon after his accession, without parliamentary sanction, exacted an "imposition" of 5s. per cwt. on Imported currants, and when the lawfulness of the imposition was questioned by John Bates, a member of the Levant Company, the Court of Exchequer decided in favour of the Crown. Another extra-parliamentary tax of 6s. 8d. per lb. was imposed by James on imported tobacco. These exactions

were the source of constant bickerings between James and the House of Commons. Another source of disputes was the granting of monopolies or the exclusive right to sell certain commodities; in the case of new inventions the grant of a monopoly was recognised as lawful and as a fit encouragement to an inventor, but both Elizabeth and James went much further and granted monopolies for the sale of common articles and for the practice or supervision of ordinary trades. Elizabeth had gracefully withdrawn certain monopolies when the House of Commons complained. James was much more obstinate. Patents granted by him for the supervision of inns and alehouses and for the sole right of making and selling gold and silver thread, roused a storm of opposition which ended in their being cancelled, and in 1624 an Act was passed prohibiting monopolies, excepting some of the principal ones then in existence, and patents for new processes for fourteen years and new industries for twenty-one years; this is the Act under which the granting of patents to inventors is still to a great extent governed. The earliest specifications of patents date from the year 1617. The continuance of unconstitutional exactions by Charles I., his levying ship-money on the ground that the realm was endangered by the Barbary pirates, and his attempt to rule without a Parliament, brought the dispute between the Crown and the nation to a crisis, and the civil war followed. In this war the victory lay with the Parliamentary party, which was the party of the commercial classes, and was strongest in the eastern counties, in London, and in the West of England, that is, in the trading and manufacturing parts of the country. The effects of the war were injurious to trade, although parts of the country, such as the eastern counties, were not touched by it. It also led to the continuance and adoption of unconstitutional methods of taxation, such as the impositions. The Long Parliament borrowed from the Dutch a new method of taxation, from which the English people had hitherto been

exempt, namely, the excise or taxation of internal trade. In 1643 the excise was introduced on ale, cider, and other beverages, and in 1644 it was extended to meat, victuals, salt, starch, textile goods, and other commodities. After the Restoration, the excise became a part of the fiscal system of the country. Feudal tenures and the feudal dues of the Crown were abolished at the Restoration, and in their place a grant was made to Charles II. and his successors of "the hereditary excise" on home-made beer and liquors, on tea and coffee, and on imported beer and cider; at the same time the customs revenue was reorganised by a statute which contained a "Book of Rates" according to which commodities were to be taxed. French wines were to pay a tonnage of £4 10s. and poundage was to be levied as an *ad valorem* duty of five per cent.; duties on cloth were levied by weight. Even these new sources of revenue were found to be insufficient, and a new tax was levied in the shape of "hearth money." The Post Office also became a source of revenue after the Restoration, and the monopoly of carrying letters for hire was reserved to the Postmaster-General. One effect of the Revolution Settlement, which finally established constitutional government, was to put an end to all attempts at arbitrary taxation and the commerce of the country benefited by being freed from uncertain burdens.

Industry.

The Stuart period was one of growing commercial prosperity. The commercial classes began to take a more prominent part in the House of Commons, and the moneyed interest began to rival the landed interest in power. The growth of London, the population of which in the early part of the 17th century had reached 150,000, made the necessity for a better supply of pure water and of fuel more urgent. In the reign of James I., under the direction of Sir Hugh

Myddelton, a new supply was derived from springs in Hertfordshire, near Amwell, and the first of the great water companies (the New River Company) was formed. The

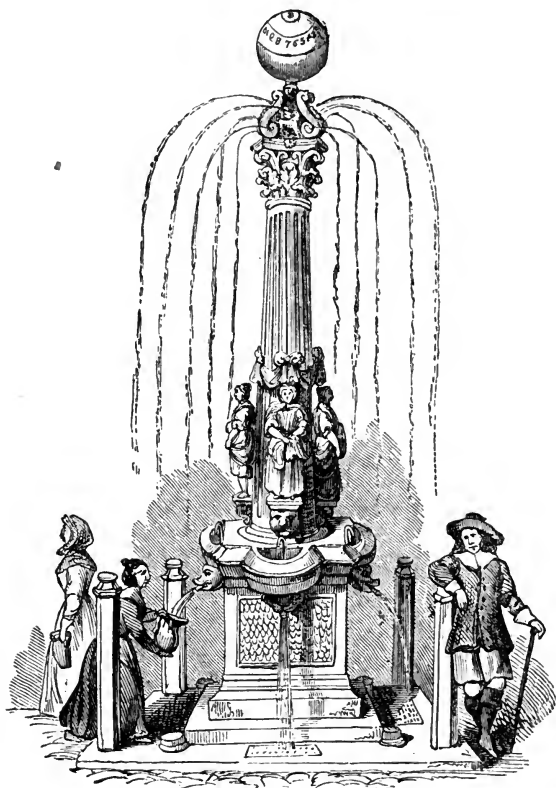


FIG. 42. CONDUIT AT LEADENHALL.

growing need for a better supply of fuel led to a great increase in the working of collieries, particularly in the neighbourhood of Newcastle-on-Tyne, and to a brisk trade in coals between Newcastle and London, so that by the begin-

ning of the 18th century the colliery trade brought up "a greater number of seamen than all our navigation elsewhere." In 1615 there were 400 sail of ships employed in the trade of Newcastle; half of the number supplied London, the other half the rest of England; French, German, and Dutch ships at the same time came to Newcastle for coal. In 1699 1,400 ships were employed at Newcastle in the coal trade. "Rare engines" were invented

in the 17th century to try the deepness and thickness of coal in the mines and to draw water out of the pits. The first steam engine which was used for industrial purposes was the invention of Captain Thomas Savery, who, in 1698, took out a patent for an engine for the raising of water. Thomas Newcomen, in 1711, invented his atmospheric engine for the pumping of water (figure 43); this engine superseded Savery's

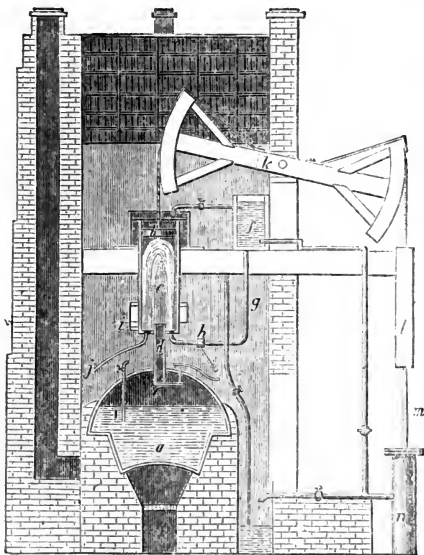


FIG. 43. NEWCOMEN'S ENGINE.¹

invention, and remained in general use till it was superseded by Watt's improvement of the steam engine. There were other contrivances for facilitating the working of collieries, such as waggon-ways between the pits and the river Tyne, and staiths

¹ *a* is the boiler, *b* the piston, *c* the cylinder, *d* a pipe from the top of the boiler inserted into the bottom of the cylinder having a cock, *e*, to interrupt the flow of steam at pleasure, *f* cold-water cistern from which the cold water is conveyed by the injection pipe *g* and thrown in a jet into the cylinder on turning the injection cock, *h*; the snifting-valve, *i*, enables the air to escape from the cylinder, while the siphon-pipe, *j*, enables the condensed steam to flow from the same cavity in the form of water; *k*, the main lever beam, *l* the counterpoise or weight hung on the balance-beam or on *m*, the pump-rod which works the pump *n*.

for the loading of ships on the river (figure 44). The waggon-ways were the predecessors of tramroads and railroads; they consisted in 1676 of "rails of timber laid exactly straight and parallel," carts were made fitting these rails "whereby the carriage is so easy that one horse will draw four or five chaldrons (over ten tons), and is an immense benefit to the coal merchant" ("North's Lives of the Norths").

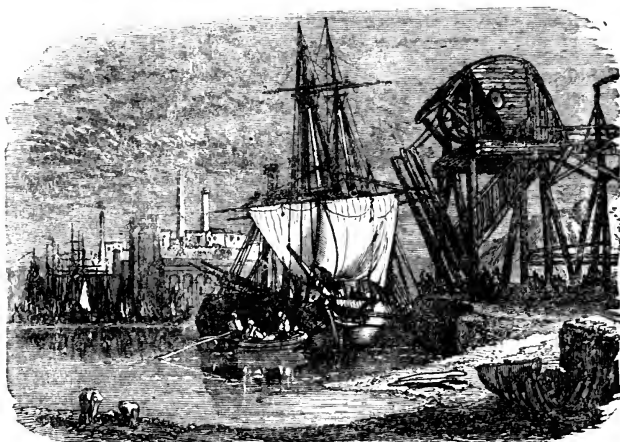


FIG. 44. COAL-STAIETH ON THE TYNE.

Iron.

During the 16th and 17th centuries iron was smelted by charcoal in Gloucestershire (Forest of Dean), Monmouthshire, Sussex, Somerset (near Mendip), Sussex, Hampshire, Cumberland, Yorkshire and Staffordshire. The iron industry in Sussex was in a thriving condition during the 16th and the first part of the 17th century. In the reign of James I. one-half of the whole quantity of iron produced in England was made in Sussex. Considerable quantities of iron ordnance were made in Sussex and exported. The iron railings which surround St. Paul's Cathedral were made of Sussex iron. But the destruction of forests caused by the demand for char-

coal for the smelting of iron led to various Acts of Parliament which restricted the ironworks in Kent, Surrey, and Sussex, and several of the Sussex ironmasters removed to Glamorganshire, where timber was more plentiful, and set up works at Aberdare, Merthyr Tydvil, and other places. The great injury caused to the forests of the country by the use of charcoal for smelting iron led to attempts being made to use pit-coal for that purpose. Various patents were obtained in the early part of the 17th century for the use of sea-coal or pit-coal for smelting, but with little practical result, until Dud Dudley (1599-1684), a natural son of Edward Sutton, 5th Baron Dudley, succeeded in smelting iron with pit-coal. Having been placed at the head of his father's ironworks at Pensnett, near Dudley, in 1619, he found these works consisted of one furnace and two forges, in which charcoal was used. "Wood and charcoal growing there scant, and pit-coal in great quantities abounding near the furnaces," led him to "attempt by a new invention the making of iron with pit-coal." In 1619 he obtained a patent and began to make good iron with pit-coal at Pensnett and Cradley at the rate of about three tons a week. In 1620 his furnaces were destroyed by a flood. He started fresh furnaces and produced a large quantity of pig-iron and good merchantable bar-iron, which he sold at £12 a ton, the price of charcoal-iron being then from £15 to £18 a ton, but his opponents, the rival charcoal ironmasters, succeeded in depriving him of his works and of the profit of his invention. He started some more furnaces at Himley, but not having a forge he was obliged to sell his iron to charcoal ironmasters, who disparaged it and eventually compelled him to abandon the furnaces. He then constructed larger furnaces near Sedgley, and by using larger bellows was able to produce about seven tons of pig-iron weekly. The molestations of his rivals continued; his bellows were cut in pieces, and he was imprisoned for debt. He began to build a new furnace at Bristol in 1651, but he was involved in litigation, and having

failed to obtain a renewal of his patent was unable to proceed further. In the description of his invention published in 1665 under the title of *Metallum Martis*, he says there were four forges in Staffordshire which "barred all or most part of their iron with pit-coal" since his invention in 1618. Abraham Darby (1677-1717), the first of a family of ironmasters, used coke for smelting iron at his furnaces in Coalbrookdale in Shropshire, but it was not till the middle of the 18th century that pit-coal came into regular use in blast furnaces (Smiles, *Industrial Biography*, Chapters III. and V.).

In the middle of the 18th century the total output of English bar-iron was 18,000 tons a year, while 20,000 tons were imported from Sweden and Russia, and a small quantity from Spain. The iron manufacture was nevertheless in a thriving condition. Thomas Foley (1617-1677), who had ironworks near Stourbridge, acquired a large fortune, about £5,000 a year from this trade.

An attempt was made by Andrew Yarranton, a Worcestershire ironmaster, to introduce into England the manufacture of tin-plates, for the supply of which England was then entirely dependent on Saxony. Yarranton paid a visit to Saxony, inspected the works there, brought back a number of skilled workmen, and began to manufacture tin-plates in England, but he was opposed by the grantees of a patent for the making of tin-plates, and his operations were stopped; no tin-plates were made in England till about 1740, when Capel Hanbury established a tin-plate manufacture at Pontypool, in Monmouthshire, where the industry has been continuously carried on up to the present time.

Glass.

Glass-making, which had been introduced into England from Venice in the 16th century, was much improved during the 17th century, in the course of which flint glass, a purely English invention, was first made. In 1611 Sir William

Slingsby obtained a patent for making glass with sea-coal, and glass was so made with success. In 1673 the diarist, Evelyn, visited a glass-house in Greenwich, and there saw glass made as good as that of Venice; the traveller Pocock says the English glass was better in quality than the Bohemian, the reputation of which stood very high. In 1677 at the Duke of Buckingham's glass works at Lambeth, huge vases of glass as clear, ponderous and thick as crystal were made, as well as "looking-glasses, far larger and better than any that come from Venice."

Salt.

In spite of the plentiful supply of salt in England, foreign salt was still imported. Attempts were made to develop the production of native salt, especially at Shields, where salt pans were set up for the making of salt from sea-water. The industry suffered considerably from Scotch competition; the development of the salt industry in Worcestershire and Cheshire was hampered by defective means of communication.

Cotton.

The manufacture of cotton was introduced from the East to Europe in the Middle Ages. Cotton was manufactured in Spain, Italy, the Low Countries, Bavaria, Saxony and Prussia, before the manufacture was brought over to England. It is thought that the art was imported from Flanders to England by the Protestant artisans and workmen, who fled from Antwerp on its capture by Parma in 1585. Lancashire became the chief seat of the industry. The raw material was at first brought from the Levant and was one of the chief commodities of the trade of the Turkey company. Lewis Roberts (the author of a book called "The Treasure of Traffic"), writing in 1641, says that Manchester merchants "buy cotton-wool in London that comes first from Cyprus and Smyrna, and at home work the same into fustians, vermillions and dimities, and other such stuffs, and then return it to London where the same is sold and not seldom sent into

foreign parts." At first linen yarn was used for the warp, and it was not till some time afterwards that cotton could be made strong enough to serve as a warp. The making of goods of cotton only was also prohibited by legislation in order to check the importation of calicoes from India. Calico printing was carried on by French refugees in 1690 at Richmond, in Surrey.

Wool.

The policy of encouraging the woollen manufacture was still continued. The exportation of wool, woolfells, wool-flocks, fuller's earth and any kind of scouring earth was forbidden (1660), and in 1666 was passed the curious protectionist measure which made "burying in woollen" compulsory.

Immigration of Foreigners.

On the Revocation of the Edict of Nantes, which had allowed liberty of worship to the French Huguenots, a considerable number of French Protestants emigrated to England at the close of the 17th century. These refugees settled in Spital-fields, Clerkenwell, Long Acre, Soho and Wandsworth, and in Canterbury, Sandwich, Norwich, Southampton, Glastonbury, Dover and Edinburgh. Many of them were persons of substance and experienced in manufactures, and they introduced improvements into the manufacture of silk, linen, paper, clocks, glass, locks, and surgical instruments. Flemish workmen introduced the manufacture of clasp knives, scythes, and sickles into the neighbourhood of Sheffield. Huguenot settlers in Ulster introduced considerable improvements into the linen trade.

The Jews were permitted by Cromwell to return to, and settle in England. The policy of allowing them to return was much criticised, and the effect of their settlement in England was perhaps of little benefit to anybody except themselves.

Agriculture.

Agriculture was on the whole in a thriving condition in the 17th century. Enclosures for the sake of extending and

improving tillage were increasing and were advocated by writers on agriculture. Root crops had been introduced from the Low Countries, and the use of manures was better understood. Sir Richard Weston introduced into Surrey a new system of rotation of crops, viz., clover, flax, and turnips. Clover seed was introduced into Worcestershire by Andrew Yarranton with beneficial results, and was soon adopted throughout the country. A gradual increase in rents during the 16th century bears witness to the prosperity of agriculture. In consequence of the increase of rents attempts were made to carry out extensive drainage and reclamation works, and thus increase the area of land under cultivation. Several important attempts to drain the Fen country were made under the Stuarts. In 1607 Chief Justice Popham and a company of Londoners undertook to reclaim part of the Fens, and made drains, which are still known as Popham's Eau and the Londoners' Lode, but nothing was done to improve the sluggishness of the outfalls of the rivers, which was one of the chief causes of the inundation of the Fen district. The first person who made a systematic attempt to cope with the difficulty was a Dutch engineer, Cornelius Vermuyden, who was invited over to England to stop a breach in the embankment of the river Thames near Dagenham. Vermuyden came from Zealand where the constant struggle with the sea had led to the art of embankment being studied and improved. Having succeeded at Dagenham he was employed in other work, namely in the draining of Hatfield Chase in Yorkshire (1626), Malvern Chase (1632), and Sedgemoor, and was called in by Francis Earl of Bedford to assist in the drainage of the Great Bedford Level. Vermuyden made a number of cuts and sluices, and when in 1634 the reclamation of the level was undertaken by the Crown, he was again employed and began considerable works, but was prevented by political troubles from further prosecuting his undertaking. A crowd of rioters destroyed the new works and let in the water. In 1649

William, Earl of Bedford (son of Francis), was allowed to proceed again with the draining of the level and employed Vermuyden. Fresh outfalls were founded for the rivers, and in March, 1652, the work was completed; 40,000 acres in the North and Middle Levels were sown with cole seed, wheat and grasses, and great numbers of sheep and cattle grazed, and farm-houses, villages, and towns were built on the reclaimed land. The Fens were still liable to inundation, and engineers at different times of the 18th and 19th centuries were called in to devise schemes for the final removal of the mischief.

Relief of the Poor.

After the Restoration the injurious effect of the Civil Wars on industry was felt, and pauperism seems to have been on the increase. The Poor Relief Act, 1662, enacted that if there was danger of a new comer being chargeable to the parish, he might be removed by the overseer within forty days to the parish where he had last been legally settled. The effect of this statute, which defined the ways in which a settlement could be obtained in a parish for the purpose of poor relief, was injurious to the working classes, as it prevented them from moving from one place to another for the purpose of obtaining employment, and in places where no work was to be had increased the number of the destitute poor by preventing them leaving and seeking work elsewhere.

Bankruptcy and Insolvent Debtors.

The Acts of Parliament of the reign of Elizabeth and James I. were found to be too stringent towards bankrupts, and it was found necessary to pass measures for the relief of debtors who were imprisoned for non-payment of debts. The injurious effects of the Civil Wars on trade and of the Great Plague of 1665, and the Fire of 1666, seemed to have increased the number of bankruptcies and insolvencies. Statutes of Charles II. (1662 and 1678) provided for the release from prison of insolvent debtors on their taking an oath that they had no

possessions worth more than £10 or sufficient to pay the debt in respect of which they were imprisoned.

Fire Insurance.

The business of fire insurance took its rise in London after the Great Fire of 1666. In 1681 the first regular office for



FIG. 45. OLD FIRE ENGINE.

insuring against loss by fire was opened at the back of the Royal Exchange and was soon followed by another. The Hand in Hand, the oldest of the existing fire insurance offices, was founded in 1696.

Life Insurance.

In the 16th century the practice began of undertaking risks upon lives for short periods to cover contingencies of a temporary character. Towards the end of the 17th century several annuity schemes were set on foot for the benefit of widows and orphans of subscribers. The first practical embodiment of this scheme was the Amicable Society founded

in 1706. Life Insurance offices proper were not founded till the middle of the 18th century.

Marine Insurance.

This business was carried on by brokers and underwriters, who resorted to a coffee-house in the City of London, kept by a Mr. Edward Lloyd, who in 1696 started a shipping and commercial chronicle, the predecessor of *Lloyd's List* (1726), which is still published, and is, next to the *London Gazette*, the oldest paper in existence in England. The persons—brokers and underwriters—who resorted to Lloyd's coffee-house in the 18th century founded the Society which is now known as Lloyd's. No companies for Marine Insurance were established before the 18th century.

Banking.

A statute of the reign of Henry VIII., which first legalised the charging of interest, fixed the rate of interest at ten per cent.; this was lowered, in the reign of James I., to eight per cent., in the reign of Charles II. to six per cent., and in the reign of Anne to five per cent., which remained the legal rate of interest until, in the reign of Queen Victoria, the Usury laws were repealed (17 and 18 Vic. c. 90). The successive reductions of the rate of interest from the reign of Henry VIII. to that of Anne, show the extent to which capital was increasing in England. Down to the reign of Elizabeth, English monarchs had been in the habit of borrowing money from foreign merchants. From the time of Elizabeth, borrowing beyond the sea became less frequent. A regular system of borrowing from the London goldsmiths in process of time grew up. The goldsmiths received from their customers deposits of money on which they paid interest and which was lent out to merchants and others who desired temporary advances. Sir Francis Child (1642—1713) was the first banker who gave up the goldsmith's business; he has been called the father of the business of banking, and the bank

founded by him is still in existence. The English sovereigns regularly borrowed temporarily from the goldsmiths or bankers on the security of the taxes. Charles II. caused a panic in the city in 1672 by stopping the repayments of the loans which had been advanced to him, amounting to £1,328,526. Interest was afterwards paid on this sum and ultimately it became a part of the National Debt—which became funded at the end of the 17th century. Out of the subsequent necessities of the Crown arose the Bank of England, which was founded in 1694, and which originally consisted of the subscribers to a loan of £1,200,000 to the Government at 8 per cent.; the Act which established the Bank (5 & 6 Will. and Mary, c. 20) allowed the subscribers to form themselves into a corporation by the name of the Governor and Company of the Bank of England, and to carry on the business of banking, *i.e.*, to receive money on deposit and lend it at interest. The notes of the Bank of England came soon to be treated as money, and were subsequently (3 & 4 Will. IV., c. 98, s. 6) made legal tender. Throughout the 18th and the first part of the 19th centuries the Bank of England was the only joint-stock company in England that was allowed to carry on the business of banking; and no firm containing more than six partners was allowed to “borrow, owe, or take up any sum of money on their bill or note payable on demand, or at any less time than six months from the borrowing thereof.” The Bank of Scotland was established in 1695, and the Bank of Ireland in 1783.

Re-Coinage.

The silver coinage which had been rectified under Elizabeth had again fallen into an unsatisfactory state; the current coins were so worn or clipped that the country suffered a severe loss in the reign of William III., in remitting money to the Low Countries for war expenses. In 1696 the old silver coins were withdrawn and new coins were issued. The value of

silver as compared with gold had fallen since the 16th century. The gold sovereign of Henry VII., of the value of 20s., was followed by the laurel of James I., the current value of which was also 20s.; Charles II. at the Restoration adopted the laurel, to which the name of guinea (from the Guinea Coast in Africa, whence the gold was obtained) was afterwards given. The value of the guinea rose to 30s. in the reign of Queen Anne, and its value was fixed at 21s. in 1717. The weight of the pound sterling was fixed in 1717 at 113'001 grains Troy weight, and has remained at that weight ever since.

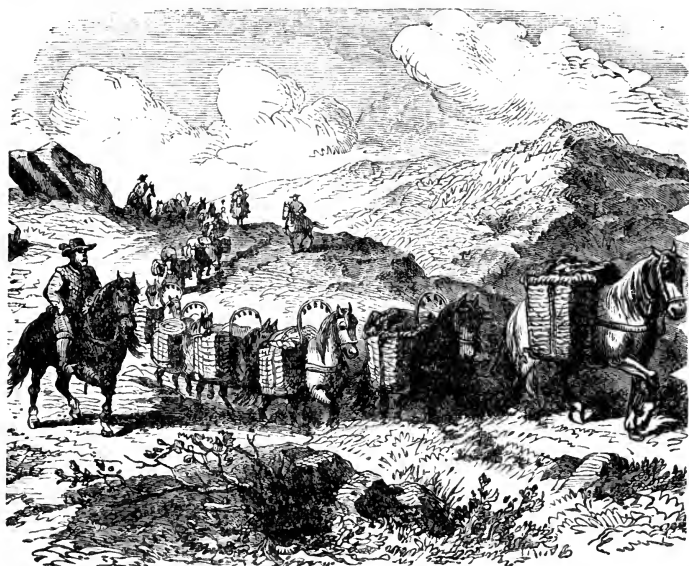


FIG. 46. THE PACK-HORSE CONVOY.

Means of Internal Communication, Roads, Bridges, etc.

Little improvement was made in England in regard to the means of internal communication between different parts of England till towards the close of the 18th century. The roads in the 17th century are represented as execrable, and

few attempts were made to improve them. In 1663 an Act was passed authorising the erection of toll-gates or turnpikes, and the levying of tolls for the maintenance of the part of the Great North Road between London and York, which lay in Hertfordshire, Cambridge and Huntingdon. Goods were chiefly carried by means of pack-horses who could travel along bridle-paths which in many parts of the country were



FIG. 47. THE OLD STAGE WAGON.

the only roads; the horses travelled in lines with bales or panniers strapped across their back (see figure 46). Coaches had been introduced into England in the 16th century and one was made for Queen Elizabeth; at first they were used for processions, and few roads outside the metropolis were practicable for wheeled vehicles. The use by carriers of long covered wagons for the conveyance of goods and passengers is mentioned

in the time of James I. (figure 47). About the middle of the 17th century stage-coaches for public accommodation were introduced. A Coventry coach is mentioned as being on the road in 1659, coaches ran between London and Dover in the reign of Charles II., and are mentioned in Lancashire in 1663 and in Yorkshire in 1679, but met with considerable opposition. Travellers mostly journeyed on horseback, and in company for the sake of safety, as the roads long remained infested with highwaymen, and no sufficient police force was established till the 19th century. Few bridges of any importance were made, the most notable being Inigo Jones's bridge at Llanrwst over the Conway, built in 1634, and a bridge of fifteen arches across the Tweed at Berwick, in the reign of James I. and Charles I. London remained with only one bridge till Westminster bridge was built in 1738-50. Schemes were set on foot for the improvement of river navigation and the making of canals by Andrew Yarranton (1616-1684). An Act for making the Stour and the Salwarpe in Worcestershire navigable was passed in 1661, and, through Yarranton's efforts, the Stour was made navigable from Stourbridge to Kidderminster, and several hundred tons of coal were thus carried down. Yarranton also opened up the navigation of the Warwickshire Avon so that barges could pass from Tewkesbury to Stratford; on his recommendation part of the Hampshire Avon was made navigable. He also proposed schemes for connecting the Stour with the Trent, the Thames with the Severn, the Severn with the Dee, and for building docks in London, but these latter schemes were not carried out. Sir Richard Weston (1591-1651) introduced into Surrey the system prevalent in Holland of making rivers and canals navigable by means of locks; he promoted a scheme for making the Wey navigable from Guildford to Weybridge, and contributed half the capital and completed ten out of the fourteen miles of the undertaking; after his death the work was completed by his son.

Books.

From the time of the introduction of printing the number of books published in England had been steadily increasing, and various attempts were made by the Crown to control publications by prohibiting the appearance of any that were unlicensed. The Licensing Act expired in 1694, and after that date publication of printed matter was free. The first statute securing copyright to an author was an Act passed in 1709 (8 Anne, c. 19).

Newspapers.

In 1622 was published "The *Weekly News* from Italy, Germany, etc.," the oldest weekly periodical, of which any copy is in existence. A number of newspapers then followed, and under the Commonwealth newspapers with an official character viz., *Mercurius Politicus* and the *Public Intelligencer* appear; these two newspapers were the foundation of the *London Gazette*, which was issued in 1665, first under the title of the *Oxford Gazette*, the twenty-fourth number of which became the *London Gazette*, which is the oldest existing newspaper. *Lloyd's List*, published in 1726, is the second in age of the existing newspapers. A very great number of papers were started during the 18th century, but the daily papers now existing are the *Morning Post* which dates from 1772, and the *Times* which first appeared under that name in 1788, while of weekly papers the *Observer* dates from 1792.

Treatises on Economics.

The increasing development of English trade and industry during the 17th century led to the appearance of a great number of important works on trade and finance. Andrew Yarranton, who has been called the founder of English political economy, in a treatise called "England's Improvement by Sea and Land," the first part of which appeared in 1677 and the second in 1681, put forward a number of valuable suggestions for the making of harbours, the improvement of

internal navigation, the extension of the iron and woollen trades and of the linen manufacture, the cultivation of the home fisheries, the establishment of a public bank, and of a register of real property. Charles Davenant, who wrote "An Essay on the East India Trade" (1696), and "An Essay upon Ways and Means of Supplying the War" (1695), criticised the policy of the Acts which made burying in woollen compulsory, advocated an excise, and made suggestions for improved methods of raising money for the public service by taxing the moneyed classes, and charging luxuries at a high and necessities at a low rate. Captain John Graunt, in his "Natural and Political Observations" (1676), suggested the study of statistics, or political arithmetic, as it was then called; this study was further pursued by Gregory King, who in 1696 calculated the population of England at $5\frac{1}{2}$ millions, and by Sir William Petty, the greatest economical writer of the time, who published, among other works, "Several Essays in Political Arithmetic" (1699) and "A Treatise of Taxes and Contributions" (1667); he exposed the folly of lotteries and of the laws against usury, and discussed the nature of exchanges, the division of labour, and the multiplication of wealth arising from the increase of population. Sir T. Culpepper and his son also attacked the usury laws, and through their efforts the legal rate of interest was lowered. Sir Josiah Child (1630-1699), director and chairman of the East India Company, who published "A New Discourse of Trade" (1694) and "Brief Observations concerning Trade and Interest of Money" (1668), advocated the reduction of the legal rate of interest to three per cent. and supported the policy of the Navigation Acts on national grounds. Nicholas Barbon, in his "Discourse of Trade" (1690) attempted to analyse the nature of wealth and the relation of value to price (Cunningham II., 228). Sir Richard Weston wrote an account of "Husbandry as used in Brabant and Flanders," a copy of which was published by Hartlib in 1650.

CHAPTER III.

The Struggle with France and the Industrial Revolution.

French Wars.

Commercial and colonial rivalry led to wars between France and England which lasted with intervals of peace from 1689 to 1815. English interests in India and America were endangered by the growth of the French possessions there, and a struggle for supremacy ensued which ended in the expulsion of the French from America, the failure of their schemes in India, the increase of the English colonial power, and the supremacy of England on the seas. By the Treaty of Utrecht (1713), France ceded or restored to England Hudson's Bay and Straits, St. Kitt's and Nova Scotia; Newfoundland with the adjacent islands was confirmed to England, but the French kept the right to catch and dry fish on a part of the coast. Spain ceded Gibraltar to England, and assigned to her the Assiento contract for the exclusive supply of negroes to the Spanish colonies. In 1752 the governors of the French colonies in America began to connect Canada and Louisiana by a line of forts, which would have shut in the English colonies and prevented any further extension to the west; war followed between England and France and ended by the conquest of Canada by England and the destruction of the French power in America. By the Peace of Paris (1763) which ended the war, Canada, Cape Breton and the islands and coasts of the St. Lawrence, and all Louisiana east of the Mississippi became English; France thus lost all her North American possessions, but she retained the right of fishing on the coast of Newfoundland and in the Gulf of St. Lawrence and kept the islands of St. Pierre and Miquelon as shelter for her fishermen; in the West Indies England obtained Granada, St. Vincent, Dominique and Tobago, while in India France

engaged not to build forts nor keep troops in Bengal, and to renounce all acquisitions made in Coromandel and Orissa since 1749. The destruction of the power of France in America had for one of its indirect results the separation of the English colonies in North America from England and the formation of the independent United States. So long as the French remained in America, the colonies required and leant on the protection of England; as soon as the French were expelled, the only reason that the English colonies had for desiring the continuance of the connection with England was gone. Therefore when the English Parliament passed measures for the enforcement of the Navigation Acts in America, and for taxing the colonies by the Stamp Act (1765), and a tax on tea (1767), war followed in 1775 with the Mother Country and ended in 1783 with the recognition of the independence of the United States of America. In this war France, Spain and Holland took part against England. By the Treaty of Versailles which ended the war, England reaffirmed the French right of fishing near Newfoundland, restored St. Lucia and ceded Tobago in the West Indies and recovered Granada, St. Vincent, St. Dominique, St. Kitt's, Nevis and Montserrat. Spain restored to England Providence Island and the Bahamas. In the Revolutionary and Napoleonic wars with France (1792-1815) the naval power of England rose to its greatest height. The French fleet was driven from the seas and the fleets of Holland and Spain which had become her allies were annihilated. The French and Dutch colonies were conquered and occupied by the English. By this war England obtained Trinidad, Ceylon, Malta, the Mauritius, Tobago and St. Lucia, the Cape of Good Hope, Demerara, Essequibo and Berbice. The Spanish colonial empire was almost entirely destroyed by the loss of the Spanish American colonies, which began to revolt in 1810, and the whole of which, except Cuba and Puerto Rico, established their independence.

Increase of Trade.

The 18th century, in spite of the many wars in which the country was engaged, was a period of increasing wealth and prosperity for England.

The Methuen Treaty.

The Methuen Treaty with Portugal in 1703 led to a considerable increase in the trade between England and Portugal. By this treaty Portugal, which had previously prohibited the importation of English cloth, agreed to admit English woollen manufactured goods on condition that Portuguese wines were admitted into England at two-thirds of the duty paid on French wines. The effect was to extend the cultivation of the vine in Portugal. Port took the place of burgundy and claret as a drink in England, and a large amount of Brazilian bullion was imported into England to pay for the consumption of English cloth in Portugal. As the exports from England exceeded the imports from Portugal, the policy of the Methuen Treaty was a popular one in England, and the feeling in its favour was so strong that the English Government was unable to carry into effect the commercial clauses of the Treaty of Utrecht, by which French goods were to be received in England on the same terms as those of the most favoured nation.

Trading Companies. The East India Company.

The operations of the East India Company were considerably extended during the 18th century. At times its trade suffered considerably from "interlopers" or unauthorised traders. In 1698 the interlopers were allowed by Act of Parliament to float a new or general company for trade with the East Indies. The position created by the rivalry of the two companies was found intolerable, and eventually the companies were amalgamated in 1708, and the "United Company of Merchants in England trading to the East Indies," was formed, and received exclusive right of trade for a time.

The growth of the political power of the Company was one of the most remarkable features of the 18th century. On the break-up of the Mogul Empire on the death of Aurungzebe in 1707 many of the dependants and officials of the Mogul ruler acquired a practical independence. The troubles that followed gave opportunities of intrigue to the French, who had founded an East India Company in 1664, had settled at Surat in 1668, obtained possession of Chandernagore and of Pondicherry, the seat of their Indian Empire, and gained from the Mogul Empire the right of coining money and the cession of territory which placed in their hands the trade of the Carnatic. In 1720 the French had taken possession of the Mauritius, which the Dutch had abandoned, and under Labourdonnais it became a thriving colony. Labourdonnais along with Dupleix, the governor of Chandernagore, and afterwards of Pondicherry, formed schemes for the foundation of a great French Empire in the East. The victories of Clive at Arcot and at Plassy (1757) laid the foundations of English political power in India, and frustrated the schemes of the French. The English obtained complete control over the province of Bengal, and from that time forward the possessions of the East India Company increased till almost the whole of India became dependent upon them. Although the East India Company became a political power, it still remained a trading company with a monopoly of the trade between the Indies and China and Europe. Its largest imports were fine muslins and silks and tea.

The supervision of the administration of the affairs of the East India Company by the English Government was established by the Acts of 1784 and 1788, which erected a Board of Control, nominated by the king. In 1793 the Company's Charter was renewed for twenty years, but their commercial monopoly was no longer complete, as they were required to allow their ships to be used for private trade to the extent of

3,000 tons annually. When the Charter was again renewed in 1813, the trade to India was thrown open altogether; the monopoly as regards the China trade was preserved till 1833, but as regards India after 1813 the Company became a purely political institution, and ceased to be commercial (Cunningham, II., 537).

African Company.

The trade of the Guinea or African Company was regarded in England as beneficial, because it opened a market for the sale of English cloths, brought to England gold (out of which guineas were coined), and supplied negro labour for the development of the English sugar plantations in the West Indies. It consequently received Government support, but it was always in difficulties. Out of its possessions grew the English colonies on the west coast of Africa.

Hudson's Bay Company.

The Hudson's Bay Company was formed in 1670 to trade for furs to Hudson's Bay. The trade of this Company was favoured because it enabled England to obtain furs without being dependent on Russia, and to pay for the furs by English cloth. The trade does not seem to have been on a very large scale until the territory within its territories became a resort for emigrants in the 19th century.

Other Companies.

The Merchant Adventurers lost their exclusive privileges and all their importance after 1719. The Turkey Company carried on a trade which was regarded as beneficial, because they sold English cloth and imported raw silk and cotton. But the era of exclusive companies was coming to a close. The tendency of Parliament was to encourage not a regulated, but "an open and expanding trade." Not in order to regulate trade, but to foster a trade that was believed to be beneficial, the Government supported such companies as the Company of the Royal Fishery of England, the object of which was to

oust the Dutch from the herring fishery, and the joint stock company formed in 1692 to carry on the Greenland whale fishery. In spite of, or because of Government support, neither of these companies flourished. The English were very slow in developing the fishing industry on which the Dutch still prospered, for it was not till 1787 that the men of Yarmouth began to engage in the deep sea herring fishery.

Speculation.

The development of banking and the credit system at the close of the 17th and beginning of the 18th centuries, led to a great increase in commercial speculation and to gambling in stocks and shares. A large number of new companies were formed and wild projects floated. Of these, two of the most notorious were the Darien Company and the South Sea Company. The Darien Company (properly "The Company of Scotland trading to Africa and the Indies"), was a company formed in Scotland for the foundation of colonies and for trading with Asia, Africa and America. The inadequate sum of about £220,000 was all that was actually subscribed for the enterprise; the company was authorised by the Scotch Parliament (1695) to found colonies, make fortifications, fit out vessels of war, and contract alliances. The scheme was opposed by the English and frowned upon by the government; the miserable failure of an expedition of three ships which sailed in 1698 and attempted to found a settlement in the Gulf of Darien led to much unreasonable ill-feeling on the part of Scotland towards England.

The South Sea Company was partly a trading and partly a financial company—its promoters had secured the Assiento Contract and were engaged in the whale fishery; the directors proposed to take over the whole of the National Debt; the possibilities of its earning profit were vastly over-rated, and the shares rose with enormous rapidity from £120 in April, 1720, to £1,020 in July; meanwhile its capital had

been sunk in procuring concessions and lending money to the government, and it had not sufficient means for carrying on its trade; the shares then sank rapidly, and those who had bought them at a high premium suffered a terrible loss; a commercial crisis and panic ensued, and was with difficulty alleviated by the dexterous policy of Sir Robert Walpole.



FIG. 48. LAW, THE DON QUIXOTE OF FINANCE.

In the same year (1720) a similar scheme in France formed at the instance of the Scotch gambler and financier, John Law (1671-1729), for the colonising of the valley of the Mississippi and for the issue of a paper currency passed through the same course of sudden rise and sudden fall, and led to widespread misery and disaster.

Scotland.

As the failure of the Darien scheme caused a great deal of soreness on the part of the Scotch, English statesmen began to see that Scotland might inflict considerable damage on English commerce and that an independent Scotch Parliament was a source of danger. The result was that a complete legislative and fiscal union was concluded between England and Scot-

land (1707). The results of the union were in the end of great



FIG. 49. LAW, AS ATLAS.

advantage to Scotland; the immediate effects on some Scotch manufactures which suffered from competition with English were probably injurious, but the commercial benefit to Scotland from the opening of English and colonial markets, which had been to a great extent closed to her by the Navigation Acts was enormous. It was not till after the Union that Scotland began to prosper. The advantages of the Union to England were that English commerce was freed from

the danger of hostile measures passed by a Scotch Parliament.

Ireland.

The effects of the prohibition in 1699 of the export of Irish cloth to any other country but England, and the imposition of a duty on its importation to England were disastrous to Ireland. The Irish were deprived of a market for their wool, and exported it in a raw or half-manufactured state to France; the workers in the wool manufacture were no longer able to earn a living in Ireland, and emigrated to foreign countries, where they started industries, which became formidable rivals to English manufactures (Cunningham, II., 299). England suffered too, as no more English capital found its way to Dublin for the promotion of weaving. The Irish linen trade

was encouraged because it did not interfere with English industry, the manufacture of linen not having been prosecuted with much success in England; Ulster was the chief seat of this industry, which prospered during the early part of the 18th century, but suffered from the competition of Scotland after the Union. Tillage in Ireland suffered from the levying on cultivated land of tithes, from which pasture land was free; as the native Irish lived chiefly on potatoes, little corn was grown; the soil was left to cattle-farmers and cottiers or small tenants, the competition between whom for land was so keen that the most extravagant rents were offered and agreed upon, but not paid. The result of the misery of the Irish population was a constant stream of emigration to foreign countries; some served in foreign armies or went as artisans to the Continent, others went to the American plantations.

The Irish Parliament, which for a short time obtained complete independence of the English Parliament by the repeal of Poyning's Law in 1782, made some attempts to foster Irish agriculture and industry by granting bounties on the exportation of wheat, the fishing industry, and the manufacture of cotton. Irish trade benefited from the increased facilities given for trade with France by Pitt's commercial treaty of 1786, but suffered from the outbreak of the war with France in 1793 and the Irish Rebellion of 1798. Demands were made in Ireland for the prohibition of English manufactures, and the Irish Parliament showed signs of a tendency to attempt commercial legislation on the lines of the mercantile system, which England had begun to abandon. A complete legislative union between England and Ireland had therefore become advisable, and was accomplished in 1801 by the Act of Union, which established one Parliament for Great Britain and Ireland, and made the adoption of a separate economic policy for Ireland impossible. The Union threw open the trade with the colonies to Ireland, and removed other restrictions from Irish trade; but as she had little or no

shipping, she profited but little; she gained some advantages from the Napoleonic wars, which stimulated the trades which supplied victuals and sail-cloth to ships. On the other hand, the Napoleonic Decrees did considerable mischief to her silk manufactures.

The Colonies. The West Indies.

The basis of the prosperity of the West Indian Islands was the sugar-cane industry, the chief seats of which were Barbadoes, Jamaica, Antigua, Nevis, and Montserrat. The sugar-cane produced three valuable products: sugar, rum, and molasses, which were imported to the American colonies and England. The amount of the sugar used in England increased from 10,000 tons in 1700 to 150,000 tons in 1800. The West Indian trade was regarded with particular favour as furnishing products which could not otherwise be procured except from foreigners.

The Slave Trade.

The West Indies, it has already been pointed out, were dependent on the African slave trade for their supply of labour; in the northern English colonies negroes were not needed, as the climate was such that white labourers could be employed, but Spanish and Portuguese America, Virginia, and the West Indies were dependent upon slaves, who were shipped from Africa to the West Indian Islands and thence distributed. The annual average of slaves exported in English vessels from Africa from 1680 to 1786 was 20,000; the largest export in a year was about 50,000; 192 English ships were engaged in this trade in 1771, 107 from Liverpool, 58 from London, 23 from Bristol, and 4 from Lancaster. Towards the close of the 18th century the evils of the slave trade caused a revulsion of feeling in England, and it was abolished, as far as England was concerned, in 1807. The immediate result to the West Indies was loss from the cessation of a trade for which they had served as a depôt.

Voyages of Discovery.

Considerable attention was devoted in the 18th century to the work of exploration. Admiral Anson (1697-1762) made a voyage round the world, in which he was engaged from 18th September, 1740, to 15th June, 1744. In 1764 Captain John Byron was sent in the *Dolphin* (the first ship in the navy which was copper-sheathed) on a voyage of discovery in the South Seas. He made only a few discoveries, but his lieutenant, Philip Carteret, who was despatched in command of the *Swallow* in 1766, discovered Pitcairn's Island (1767), the Sandwich Islands, and a great number of other islands in the South Pacific.

Australia.

In 1768 Captain James Cook was despatched to the Pacific to conduct observations on the transit of the planet Venus, which he observed from Otaheite in 1769; on his return home he surveyed New Zealand and the eastern coast of New Holland (Australia); in this voyage he made greater discoveries than any navigator since Columbus. In 1772 he was despatched on another expedition to discover the *Terra Australis* (i.e., southern land), or the continent which was believed to exist around the south pole. In the course of this voyage he found that the coasts of New Holland had been mistaken for this continent. In his third voyage, (1776-1779) he visited Tasmania and New Zealand, and explored the unknown western coast of America, north of California, to a length of 3,500 miles; on his return to the south he was murdered by the natives of the Sandwich Islands (1779). Captain George Vancouver, who had served under Cook, was sent, in 1791, to survey the coast of West America from Lat. 30° N.; he went round the Cape of Good Hope, surveyed the south-west coast of Australia, visited and explored New Zealand, and sailed across the Pacific to North America, and circumnavigated the

island which bears his name; he spent two years in examining, and for the first time, accurately delineating the coast from San Francisco northwards.

Settlement of Australia.

The first settlement in Australia was made in 1788, when Captain Arthur Philip, in command of several vessels with 850 convicts on board, reached Botany Bay and founded the colony of New South Wales, and the city of Sydney on the harbour of Port Jackson. In 1796 George Bass discovered the straits that bear his name, and established the fact that Tasmania, which he and Lieutenant Flinders circumnavigated in 1798, was an island. In 1800 Captain Grant explored the shores of what is now Victoria. In 1801 Flinders made a survey of the southern, eastern, and part of the northern coasts of Australia, from King George's Sound to Arnhem Bay to the west of the Gulf of Carpentaria. In 1802 Lieutenant Murray further explored the coasts of Victoria and the recesses of the land-locked bay of Port Philip. Australia for long remained the place to which England sent out every year criminals who were sentenced to transportation, and who, after serving their time, became in many instances settlers and owners of land. The colony did not begin to prosper until the rearing of sheep was introduced. At first sheep were introduced from Bengal, but their wool was of a poor quality. Captain Waterhouse, in 1797, and Captain Macarthur, in 1803, introduced some Spanish merino sheep and thus improved the quality of Australian wool. Under the administration and by the direction of Colonel Lachlan Macquarie, who became governor of New South Wales in 1810, the vast and fertile pastures of Bathurst were discovered. Emigrants came over from England and Scotland, the population was quadrupled, and the area of the colony increased twenty-fold. The prosperity of Australia, like that of England, was based on wool, a ready market for which was obtained in England,

where the price had risen considerably during the last part of the 18th century in consequence of the great development of woollen manufactures.

Canada.

On the revolt of the United States, the English retained Canada, where a French population predominated. Canada made steady progress under English rule ; its two chief products in the 18th century were lumber (*i.e.*, timber), for the transport of which the River St. Lawrence afforded great facilities, and furs which were obtained from the Indians.

Newfoundland.

Newfoundland, which was secured to England by the Treaty of Utrecht and again by the Treaty of Versailles, had the best fisheries in the world, but their very excellence was a hindrance to its development. The fishermen resorted there in great numbers in the summer from England and elsewhere, and wished to have the coasts free so that they might have places for landing and curing their fish, which they took away when they left on the approach of winter. It was therefore to the interest of the fishermen that the country near the sea-shore should not be settled. Moreover, the undefined rights of fishing and of using a certain part of the shore reserved to the French by the treaties, were a constant source of dispute, and prevented the districts which the French claimed the right to use, from being developed. No permanent governor of this island was appointed till 1720.

Industry.

There was a continuous progress in manufactures from the Revolution of 1688, but a most remarkable development took place towards the end of the 18th century, when the application of the steam-engine to manufactures and the invention of new machines revolutionised the whole character of English industry, and brought about the substitution of the factory

for the domestic system. The name of the Industrial Revolution has been given to this change, which had far-reaching commercial and political results.

Scientific Discoveries.

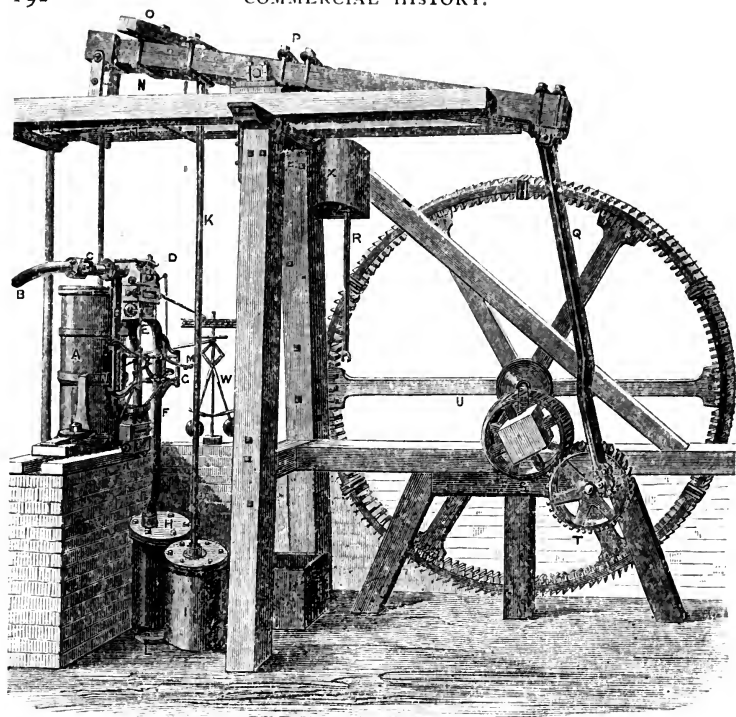
The great inventions of the second half of the 18th century were preceded or accompanied by, and closely connected with great advances in the study of natural science. The Royal Society (or more fully the "Royal Society of London for improving Natural Knowledge") was formed in 1660 by a number of distinguished men interested in the advance of mathematical and physical science, and is still the foremost scientific society in England; the Linnæan Society for encouraging the study of botany was founded in 1788, the Geological in 1807, and the Royal Astronomical in 1820, and a large number of other scientific societies subsequently. In 1753 was founded the Society of Arts (in full, "Society for the encouragement of Art, Manufactures and Commerce"). In 1799 the Royal Institution of Great Britain was formed for diffusing the knowledge and facilitating the general introduction of useful mechanical inventions and improvements, and for teaching by courses of philosophical lectures and experiments the application of science to the common purposes of life. One great feature of the 18th and 19th centuries has been the application of scientific discoveries to commercial purposes.

The Steam-engine.

Various improvements had from time to time been made in Newcomen's engine. But the system of the Newcomen engine was radically wrong, and no steam engine was made to work satisfactorily till the time of Watt. James Watt (1736-1819) was at first an instrument-maker in Glasgow, and while thus engaged, having been called upon to repair a model of the Newcomen engine, he directed his thoughts to the study of the question how to avoid the waste of steam

which was the great defect of the existing engines. To the solution of this problem Watt applied not only great engineering and mechanical skill, but also the principles of physical science, which was then making great strides in the United Kingdom.

Watt conceived the idea of condensing the steam in a separate cylinder, and of forcing down the piston by the action of steam instead of the action of the atmosphere. He patented his engine in 1769, and became the partner first of Dr. Roebuck, who was engaged in sinking for coal on a large scale near Boroughstonsess, and afterwards of Matthew Boulton, who had established at Soho, near Birmingham in 1762 the largest hardware manufactory in the world. Watt's engine was sent to Birmingham, and Watt himself went there in 1774; the engine was put together at Soho works, and there for the first time worked satisfactorily. New buildings were put up at Soho for the manufacture of engines, the fame of Watt's invention was spread abroad, and orders came in for engines, especially from Cornwall, for pumping water from the mines. The first engine was made in 1776 for John Wilkinson, a great ironfounder. The next order was from Cornwall in the end of 1776. In the making and setting up of these engines Watt was assisted by William Murdock, an engineer of great skill, who was in the employ of Boulton and Watt, and their most trusted adviser and co-worker. By 1780, the firm of Boulton and Watt had made forty engines, twenty-one of which were for Cornwall, and meanwhile Watt was engaged in further inventions for the improvement of his invention. Hitherto, his engines had been mainly used for pumping water, but he now applied himself to the invention of a rotary-working engine which could be used in mills. Patents for different rotary engines were taken out by Boulton and Watt in 1781 and 1782. The first rotary engine (figure 50) was made in 1782 for a corn-mill. Watt continued improving his engine by the invention of the parallel motion,

FIG. 50 WATT'S FIRST ROTARY ENGINE.¹

for which, as well as for other improvements, he took out patents in 1784. The first rotary engines with a parallel motion were those which were put up at the Albion Mill in London in 1786; the engines were made almost entirely of iron. Orders for engines came in from this date at a very rapid rate, and the firm made large profits (Smiles, *Lives of Boulton and Watt*).

¹ A, steam cylinder; B, steam pipe; C, throttle valve; D, steam valve; E, eduction valve; F, eduction pipe; G, valve gearing; H, condenser; I, air pump; K, air pump rod; L, foot valve; M, hand gear tappet rod; N, parallel motion; O, balance weight; P, rocking beam; Q, connecting rod; R, feed pump rod; S, sun wheel; T, planet wheel; U, fly wheel; W, governor; X, feedwater cistern.

Iron.

By the middle of the 18th century iron had become the second in importance of English manufactures, the woollen manufacture being still the first. In the beginning of the 18th century the importation of pig-iron from America to England was encouraged for the sake of preventing the destruction of English forests. English iron ore was also sent over to Ireland and smelted there, and the importation of bar-iron, duty free, was allowed from Ireland into England.

Meanwhile the attempts to smelt iron with coal in England had been going on. Mr. Richard Ford, who managed the Coalbrookdale Works in 1747, succeeded in making iron ore to run with pit-coal, and in the time of Richard Reynolds, who succeeded his father-in-law, Abraham Darby the second, in the management of the Coalbrookdale Works in 1763, pit-coal came into regular use in the blasting furnaces, and during his management, by the use of the reverberatory furnace, in which the iron did not mix with the coal but was heated solely by the flame, coal could be employed in the "puddling" of iron, of which a greater quantity could be then produced at a lower price. This invention, which was patented in 1767, was the work of two of the foremen at Coalbrookdale, Thomas and George Cranege, and the patent was taken out in their names. In 1767 Reynolds substituted iron for wooden rails in the tramroads which were used for conveying iron from one part of the works to another, and to the loading places along the River Severn. In 1760 Roebuck introduced the manufacture of iron into Scotland by establishing in Stirlingshire, in 1760, the Carron blast furnaces, where Carronades were cast for use in men-of-war in 1779. In 1762 Roebuck took out a patent for melting the cast or pig-iron with pit-coal and working it till it was "reduced to nature or metallised," and was then exposed to the action of a hollow pit-coal fire urged by a blast, and reduced to a loop and drawn out into bar-iron under a forge hammer. The blast furnaces were at

first worked by water-power, but in 1790 steam-engines were introduced. The quantity of pig-iron made in England increased from 68,300 tons in 1788 to 125,079 tons in 1796. Important inventions in the working of pig-iron were made by Peter Onions, of Merthyr Tydvil, in 1783, and by Henry Cort, of Gosport, who in 1783 obtained a patent for converting pig-iron into malleable iron with coal by puddling, and in 1784 another patent for making malleable iron into bars by means of rollers. The greater part of the iron of the country was thenceforth worked with coal and by furnaces in which steam was used; and this, among other results, produced a change in the centres of the iron manufacture. While charcoal and water-power were used, the iron manufactures were carried on in places where wood was abundant and water available. The application of steam made the ironmasters independent of water-power, and the iron manufactures were most economically carried on in places where coal and ironstone were found near together. Some places, such as Gloucestershire and Staffordshire, where charcoal smelting had been carried on, had supplies of coal as well as timber, and retained their iron manufactures. In other places like Sussex, where there was no coal, the iron works ceased to be of any importance, while new centres of activity sprang up in parts of Scotland, the North of England, and South Wales.

In South Wales, which is now one of the chief seats of the iron trade, the manufacture is of comparatively modern growth. In 1755 Anthony Bacon obtained near Merthyr Tydvil, which was then a small village, a lease for 99 years of the minerals under a district of 40 square miles at the rent of £200 a year; there he erected coal and iron works, and supplied the government with cannon which was carried to the port of Cardiff, and thence shipped to Plymouth and Portsmouth. Having acquired a large fortune, he divided his property in 1783 into four parts, and leased the Cyfartha works to Richard Crawshay,

the Penydarran to Samuel Homfray, the Dowlais to Messrs. Lewis and Tate, and the Plymouth to Mr. Hill. Crawshay and Homfray were among the first to introduce Cort's inventions, and planned and constructed a canal from Merthyr Tydvil to Cardiff, which was opened in 1795, and gave an immense impetus to the iron trade in the neighbourhood.

In Scotland the iron manufacture founded by Roebuck rapidly grew; besides the Carron works, other works were

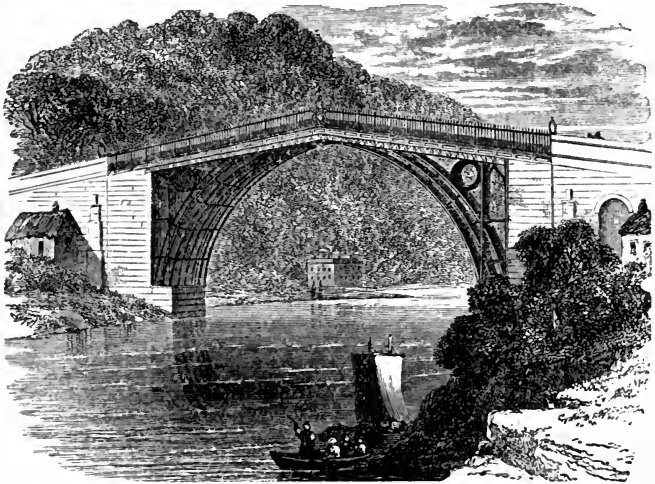


FIG. 51. THE FIRST IRON BRIDGE, COALBROOKDALE.

established at Clyde Clough, Muirkirk and Devon. An extraordinary expansion of the Scotch iron trade followed on the discovery by David Mushet of the Black Band ironstone, near the River Calder, in 1801, a discovery which "elevated Scotland to a considerable rank among the iron-making nations of Europe."

Iron began to be used for a number of articles for which wood or stone had been used before. The first iron bridge was erected at Coalbrookdale in 1777 by Abraham Darby the

third (see figure 51); the first iron vessel was built by the brothers John and William Wilkinson, and traded upon the Severn before 1790. Benjamin Huntsman, of Sheffield, invented a process in 1740 for the manufacture of cast steel, by breaking into small pieces bars of blistered steel (*i.e.*, steel produced by exposing iron bars placed in contact with roughly granulated charcoal to an intense heat), and fusing them in covered fire-clay crucibles placed in a furnace heated by a coke fire. Huntsman's cast steel became famous throughout the civilised world, and commanded a higher price than any other steel; the process, the invention of which added enormously to the prosperity of Sheffield, is still carried on, as invented by him, without much change, and is used in the manufacture of the finest quality of steel. In 1800 David Mushet took out a patent for the making of steel from bar-iron by a direct process combining the iron with carbon.

Coal.

The extended use of coal in the manufacture of iron, and in the working of steam-engines, led to a considerable increase in the coal-mining industry. The improvements in the steam-engine benefited this industry by providing more efficient means for clearing the mines of water and for raising coal. The output from the old coalfields was increased, and coalfields were opened or developed in Lancashire, the Midlands, South Wales, and Cumberland. The output of coal increased from 2,612,000 tons in 1700 to 4,773,828 tons in 1750, and 10,080,300 tons in 1795.

Coal Gas.

The use of gas derived from coal, for the purpose of lighting, was first made practicable by the invention of William Murdock, an engineer in the employ of Messrs. Boulton and Watt. The inflammable qualities of the gas obtained from coal had long been known to chemists and experimenters, but Murdock first applied these qualities to practical use. The subject

began to engage his attention in 1792, and in 1798 he contrived an apparatus for the making, purifying and storing of gas, and several of the offices at Soho were lighted with it. On the celebration of the Peace of Amiens, in 1802, the front of the Soho works was illuminated with gas, and from 1803 the whole of the works was lit with it; several large firms



FIG. 52. THE SPINNING WHEEL.

followed the example, and gas manufacturing apparatus became a part of the Soho business. In 1805 the mills of Phillips and Lee, of Manchester, were fitted up with gas-lighting apparatus, and, in 1808, Murdock communicated a paper on the subject of lighting by gas to the Royal Society. In 1810 the London and Westminster Chartered Gas Light and Coke Company obtained the first Act granting parliamentary powers for the supply of gas for lighting, but the company was on the point of failing when Clegg, a pupil of Murdock's, undertook the management and introduced new

apparatus. In 1810 Clegg lighted a shop in the Strand with gas, and it was then regarded as a great novelty in London; in 1812 Westminster Bridge was first lit with gas; in 1817 Glasgow, and in 1818 Liverpool and Dublin adopted the new illuminant, which soon came into general use (Smiles's *Invention and Industry*, Life of Wm. Murdock, page 136).

Cotton.

Up to the middle of the 18th century the two chief processes in the manufacture of cotton as well as of other textile goods,



FIG. 53. THE LOOM, SIXTEENTH CENTURY.

viz., spinning, or the making of threads from the raw material, and weaving, or the making of the threads into cloth by the intertwin-
ing of warp and woof, were performed chiefly by hand; thread was spun by the spinning wheel (figure 52), and cloth was woven by the hand-loom (figure 53). The last half of the 18th century saw a number of remarkable inventions which revolutionised the textile industries of the country.

Spinning.

In 1738, John Wyatt, of Birmingham, invented a process for spinning by rollers, and a patent for the new invention was taken out by Lewis Paul, who also patented in 1748 a machine for the carding of wool and cotton, and in 1758 another spinning machine. These machines were set up at Birmingham and at Northampton, but were not commercially successful. Richard (afterwards Sir Richard) Arkwright, of Preston, invented his spinning roller, for which he took out a

patent in 1769. Arkwright set up a mill for the working of his machine at Nottingham, and another at Cromford, in Derbyshire; the latter mill was worked by water, and hence Arkwright's invention became known as the water-frame (see figure 54). James Hargreaves, a weaver of Hand-hill, near Blackburn, in 1774, invented a machine called the Spinning Jenny (figure 55), which spun eleven threads instead of one, which was all that the hand spinning-wheel could spin. He took out a patent in 1770 for his invention, which he so improved that it could spin first 16, then 20, and at last 120 threads.

His machines were destroyed by a mob, and he went to Nottingham, where he set up a small mill, in which he carried on business with moderate success till his death in 1778. The spinning jenny soon came into general use in spite of riots in which

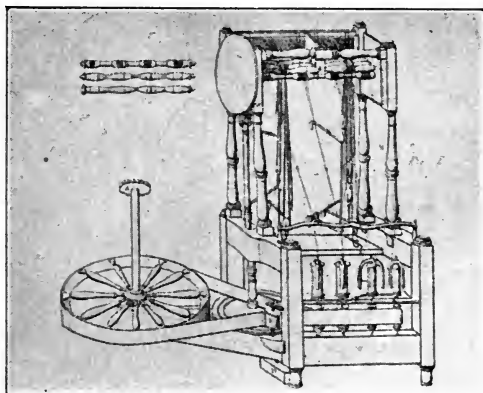
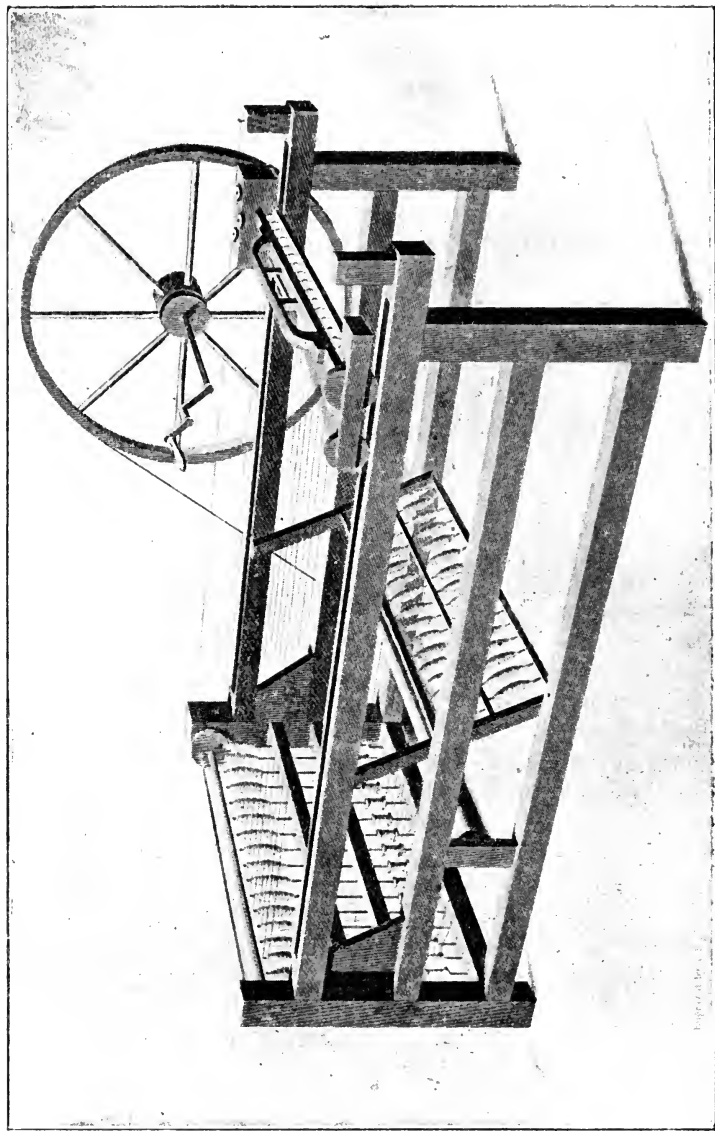


FIG. 54. SIR RICHARD ARKWRIGHT'S SPINNING MACHINE.

the machines were destroyed. The inventions of Arkwright and Hargreaves removed the obstacles which had hitherto hindered the advance of the cotton manufacture. Yarn was now produced in greater quantities and of better quality. The water frame spun a hard and firm thread which could be used for a warp; up to Arkwright's time the warp for cotton goods had been made in England of linen; by means of the spinning jenny, the manufacture of fine and



THE SPINNING JENNY.

Engraved by J. B. S.

delicate fabrics, especially calicoes, which, up to this time, had been the monopoly of the East, was made possible in England. Other improvements quickly followed. Arkwright invented a machine for an improved process of carding, which was patented in 1775, and other machines for "drawing" and "roving." The introduction of these machines led to the establishment of the factory system. The new machines required more space than could be found in the

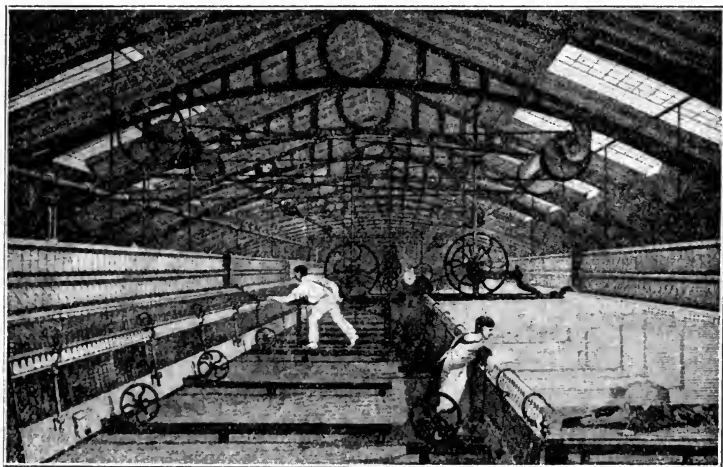


FIG. 56. MULE SPINNING.

cottage-rooms, where the process of spinning had hitherto been carried on ; the weight of the machines made it necessary to place them in strongly built mills where water-power could be used. The Mule Jenny combined the principles of Arkwright's water frame with those of Hargreaves' spinning jenny, and was invented by Samuel Crompton, a weaver, of Hall-in-the-Wood, near Bolton, in 1779 (see figure 56). By this invention much finer quality of yarn could be produced ;

the Mule Jenny superseded Hargreaves' spinning jenny, and to a considerable extent Arkwright's water-frame. His invention was further improved upon by the invention of self-acting mules by William Street (1790), Kelly of Lanark (1792), and Roberts of Manchester (1829). Arkwright's water-frame was also improved by the invention of the Throstle, which was used for the coarser kind of goods, while the Mule Jenny was better adapted for finer qualities. By means of this last invention, in a single room several thousands of spindles could be worked, revolving with great rapidity, needing no hand to guide them, and winding as many thousands of threads. By means of the improvements of Crompton and his successors, yarn could be spun fine enough for the manufacture of muslin. Before the invention of spinning machinery, only the stronger and coarser fabrics had been made in England, such as fustians, cotton velvets, velveteens and corduroys. After the invention of the spinning machines, English manufacturers began to imitate the light fabrics of India. Calicoes were made by Arkwright in 1772 and 1773, and soon afterwards in Blackburn, which became the chief seat of the manufacture, which also extended into the country round Blackburn and into the parts of Yorkshire near Burnley. After 1785 muslins were made in Bolton, Preston, Glasgow and Paisley, and cotton goods came into general use in place of fabrics of flax and silk.

The steam-engine was applied to the spinning of cotton in 1785, when an engine was made by Messrs. Boulton and Watt for a cotton mill at Papplewick in Nottinghamshire.

Weaving.

With the exception of John Kay's invention of the flying-shuttle (1738), adapted to cotton weaving in 1760, and Robert Kay's invention of the drop-box (1760), the application of improved mechanical appliances to weaving was of later introduction than was the case with spinning. The

power-loom was invented by the Rev. Edmund Cartwright and patented in 1787. For this invention Cartwright obtained a grant of £10,000 in 1812. A dressing machine to dress the warp before it was placed in the loom, was produced by Messrs. Radcliffe and Ross, cotton manufacturers, of Stockport; patents for this invention were taken out by them in 1803 and 1804 in the name of Thomas Johnson, a weaver in their employ, to whom the invention was partly owing. By means of this invention the power-loom became available for general use. Patents for another power-loom were taken out by William Horrocks, a cotton manufacturer of Stockport, in 1803, 1805, 1813, and 1821, and his loom, constructed entirely of iron, was generally adopted. The power-loom and the dressing machine came slowly into use, in spite of riots and machine-breaking, which in the 18th and early part of the 19th centuries marked the introduction of almost every labour-saving invention. The number of power-loom in England and Scotland increased from 14,150 in 1820, to 55,500 in 1825, and 100,000 in 1833. Other inventions were the scutching machine, invented by Snodgrass of Glasgow, in 1797, the spreading or lapping machine, and the willow for the first process of cotton manufacture.

Two other processes in the manufacture of cotton, viz., bleaching and printing, were also much improved by the introduction of inventions.

Bleaching.

In 1774 the properties of chlorine (or oxymuriatic acid, as it was first called) as a destroyer of vegetable colours, were discovered by Scheele, a Swede. Berthollet, a French chemist, conceived the idea of applying it to the bleaching of cloth made of vegetable fibres. He communicated his ideas to James Watt, who, at the end of 1786, introduced it, with improvements of his own, into Scotland. Thomas Henry of Manchester made experiments on the use of oxymuriatic acid

in 1788, and suggested the use of lime to take away the noxious smell of the acid. Mr. Ridgway, of Horwich near Bolton, introduced many improvements. So great was the change brought about by the use of chlorine, that the time required for the process of bleaching was reduced from months to days, and afterwards hours. Tennant of Glasgow in 1799 took out a patent for impregnating slaked lime in a dry state with chlorine, and established a large manufacture of the articles so patented and brought them into general use.

Printing.

Printed or stained cottons were made first in India; cotton printing was not practised in England till the 17th century, when it was introduced from France. Calico printing was at first carried on in the neighbourhood of London, but from about the middle of the 18th century it began to decline there owing to the distance from the chief seats of cotton manufacture in the north, to high wages, dear fuel, and the superior activity and skill of the calico printers of Lancashire. Messrs. Clayton, of Bamber Bridge near Preston, introduced calico printing into Lancashire; they began business on a small scale in 1764, and were followed by Mr. Robert Peel (the grandfather of the celebrated Sir Robert Peel) who carried on business in the neighbourhood of Blackburn. At first the calicoes were printed by means of blocks, but a great step in advance was made on the invention of printing by copper cylinders. The invention is ascribed to a Scotchman named Bell, and it was first successfully applied in Lancashire about 1785. The process was still further improved by an invention by which the process of engraving was performed by a mechanical process, which transferred the pattern from a very small steel cylinder to the copper cylinder; this system was perfected by Joseph Lockett about 1808. Another process was invented for etching instead of engraving the copper cylinders. Other improvements were made in the process of

printing, such as raising the pattern on the surface of the block by pieces of flat copper or brass wire of various thicknesses and forms instead of cutting it in relief on the wood; the use of cylindrical blocks, or engraved wooden rollers; and the union or mule machine, the invention of James Burton in 1805, an engineer to Messrs. Peel and Co., by which a wooden cylinder in relief could be used at the same time as an engraved copper cylinder.

Sources of the Supply of Raw Cotton.

Raw cotton, which is a vegetable down, the produce of the cotton plant (figure 57), was obtained at first from the Levant, then from the British West Indies, and afterwards chiefly from the United States, especially from South Carolina and Georgia, which supply the best variety, known as sea-island cotton. The invention in 1793 by Eli Whitney of Massachusetts of the saw-gin for detaching cotton from the seeds which it envelops, gave an impetus to the American cotton industry. In 1784 the first consignment of American cotton, consisting of eight bags, arrived at Liverpool. In 1791 the United States exported to England 189,316 lbs. of cotton, in 1794 1,604,700 lbs., in 1800 17,789,803 lbs. The great increase in the cultivation of cotton in America was the result of the English inventions in spinning and weaving, which increased enormously the demand for raw cotton. The total amount of the imports of cotton into Great Britain from all sources rose from 1,985,868 lbs. at the beginning of the 18th century to 56,010,732 lbs. at its close. Other sources of supply besides the United States were the Isle of Bourbon, Demerara, and Brazil, Egypt (after 1823), and India.

Manufacture of Cotton Stockings and Lace.

Crompton's mule, which spun yarn fine enough for lace, led to a considerable growth in the bobbin-net or lace manufacture, the chief centre of which was at Nottingham. The

application of the stocking-frame to the making of lace was first tried in 1768 by Hammond, a frame knitter of Nottingham. Mr. John Heathcoat improved and altered the stocking-frame, and took out a patent for his improvements in 1809. By this and other improvements cheap net was produced, and the



FIG. 57. THE COTTON PLANT.

manufacture of pillow lace by hand almost destroyed. The stocking-frame was improved in the 18th century, and adapted by Jedediah Strutt to the making of ribbed stockings. The improvements in spinning machinery gave a great impetus to the manufacture of cotton stockings.

The manufacture of sewing-thread also grew out of the improvements in spinning machinery; it was made in Manchester and in Scotland, and large quantities were exported.

The quantities of cotton goods exported from Great Britain increased enormously. The value of the exports rose from £5,915 in 1697 to £200,354 in 1764, £1,101,457 in 1787, and £20,033,132 in 1814. The price of cotton yarn sank with the development in machinery, and in 1832 was one-thirteenth of its price in 1786.

The result of the development of the cotton manufacture was the increase of the population in Lancashire from 166,200 in 1700, to 1,336,854 in 1831, and to a similar increase in the population of Lanarkshire and Renfrewshire (E. Baines, History of the Cotton Manufacture in Great Britain).

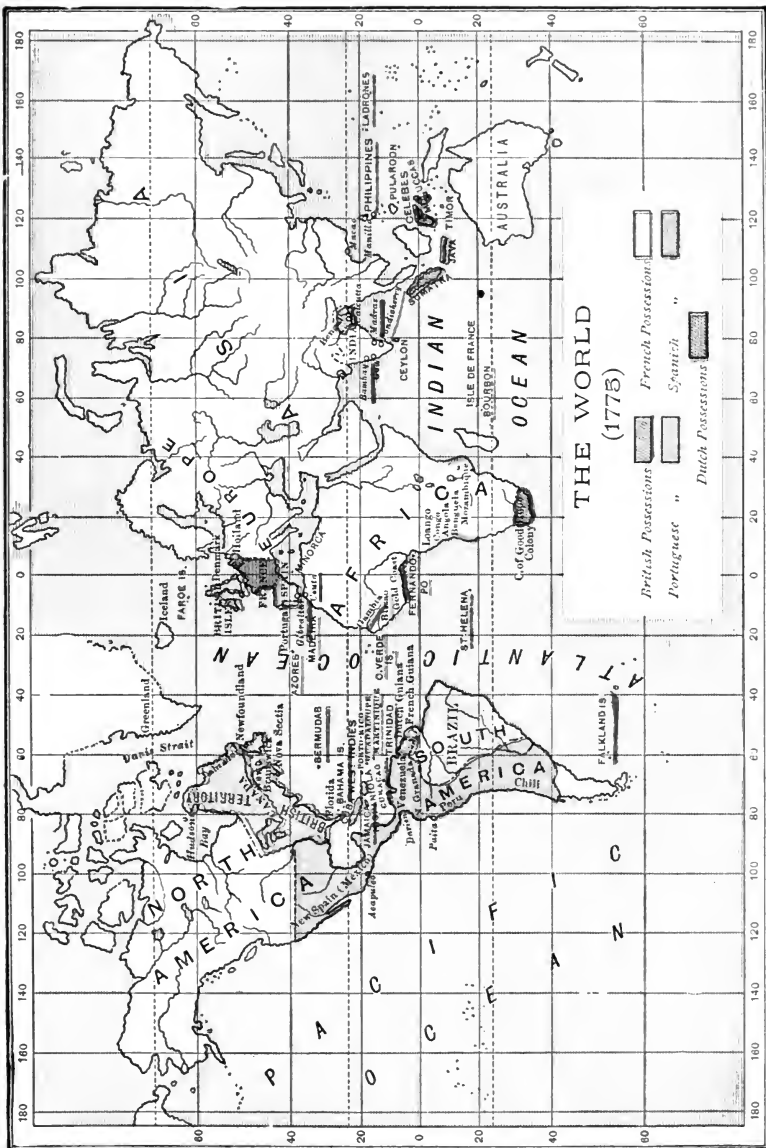
Woollen Manufactures.

Most of the machines that had been introduced into the cotton manufacture were also adapted to the woollen, while other machines were invented specially for the making of woollen cloth. Lewis Paul's carding machine was used in the woollen manufacture at Northampton, Leominster and Wigan; mention is also made of a "slubbing engine" for scribbling, carding, and slubbing wool, and machines for grinding wool, "by means of which the manufacturer had as much done for $1\frac{1}{2}$ d. as used to be performed for $4\frac{1}{2}$ d." An extraordinary saving was caused by the invention of wool-combing machinery by Cartwright in 1790-2, which was followed by other similar inventions by Toplis, Wright, and Hawkesley, in 1793. The high price of wool, caused partly by the increase in the quantity of cloth manufactured, partly by the interruption of the wool supply from Germany and Spain owing to the French wars, led to a depression in this industry. The creation of a new source of the supply of wool in Australia did a good deal to lower the price. The weaving industry began to migrate from the southern and

eastern counties to the West Riding of Yorkshire. 'This migration, which had been going on from the early part of the 18th century, was quickened by the increased use of machinery; the woollen, like other industries, tended to centre in particular districts, especially those where supplies of cheap coal could be had; the introduction of machinery made the erection of large factories necessary. Spinning had been in many homes the mainstay of the household, or had been used to supplement the wages of agricultural labourers or the earnings of small farmers; when this source of support was withdrawn, widespread misery resulted, and numbers of the labouring class became dependent on parish relief. Moreover, the increased employment of children, which the introduction of machinery made possible, threw many of the adult labourers out of work. The French wars raised the price of provisions and produced disturbances in industry. The distress so caused led to the Luddite riots, in which many of the new machines were destroyed, and it was some time before the disturbances caused by the industrial revolution were alleviated and the working classes were reconciled to the new system, the immediate results of which were to cause distress in some districts, but the ultimate results were to increase the wages fund, and improve the condition of the working classes. The hindrances to the movement of labourers from one district to another were to some extent removed by an Act passed in 1795 modifying the Poor Relief Act, 1662 (page 168), and protecting new-comers from interference from the overseers until they actually became chargeable on the parish.

Other Industries.

New processes were invented in other industries such as the silk manufactures; a machine for silk throwing worked by water power had been set up at Derby in 1719 by Sir Thomas Lombe. In the earthenware industry new methods of salt-



glazing had been introduced from Holland by two brothers named Elers, and the improvements of Wedgwood led to the production of pottery of great artistic beauty, and to the increased use of earthenware for common household articles which had previously been made of iron.

Means of Internal Communication. Roads.

Improvements were made in the methods of travelling during the 18th century by the introduction of fast stage-coaches



FIG. 58. THE BASKET COACH.

(figure 58), but most of the roads throughout England remained in a deplorable condition. After the suppression in 1746 of the Jacobite rebellion, roads were made in the north of Scotland for military and civil purposes, and the main routes between the north and the south were considerably improved. The improvement of the highways in England was chiefly the

work of the turnpike trusts, which were empowered to erect toll-houses and turnpike bars or gates, and to charge tolls for the maintenance of roads. Between 1760 and 1774, there were passed 452 Acts of Parliament dealing with the making and repairing of highways (Smiles, *Lives of the Engineers*, I., 206). Even in spite of the turnpike system the roads long remained in an unsatisfactory condition. The art of road-making was but little understood. Many of the roads in Lancashire, Yorkshire, Cheshire and Derbyshire were made by John Metcalf, or "Blind Jack of Knaresborough" (1717-1810), who was bred to no trade and at first earned his living as a fiddler; he made in all about 180 miles of roads, the construction of which involved the building of many bridges, retaining-walls and culverts.

One of the greatest of English road-makers was the celebrated engineer, Thomas Telford (1757-1834), who was employed by the Government to report on the roads and means of communication in the Highlands of Scotland, and in consequence of whose report 920 additional miles of roads and 1,200 bridges were constructed. He also made sixty-nine miles of a new line of road between Carlisle and Glasgow, and the great coach-road from Shrewsbury to Holyhead (1815-1819), so laid out that no gradient was more than 1 in 20. The chief points at which Telford aimed in the construction of his roads were "to lay them out as nearly as possible upon a level, and to make the working or middle portion of the road as firm as possible by a metal bed of two layers of hard stones the top course consisting of broken stones, none exceeding 6 oz. in weight and each able to pass through a ring $2\frac{1}{2}$ inches in diameter; a heading of gravel about an inch in thickness was placed on the top, and a drain crossed under the bed of the bottom layer to the outside ditch in every hundred yards." A similar method of road-making was introduced by Macadam, who, in 1815, was appointed surveyor-general of the Bristol roads, and from whom the word "macadamised" is derived.

Bridges.

Considerable attention was directed to the building of bridges in the last half of the 18th century. A number of bridges in Monmouthshire and Wales was built by William Edwards (1719-1789), who from a farm-labourer, first became a mason, and then a bridge builder of some repute. In 1738-50, the first Westminster Bridge was built by Labelye, a Swiss engineer. A bridge was built at Blackfriars in 1760-9 by Robert Mylne, who in its construction introduced for the first time in England the flat elliptical arch, the effect of which was to lessen the steepness of the gradient of the roadway.

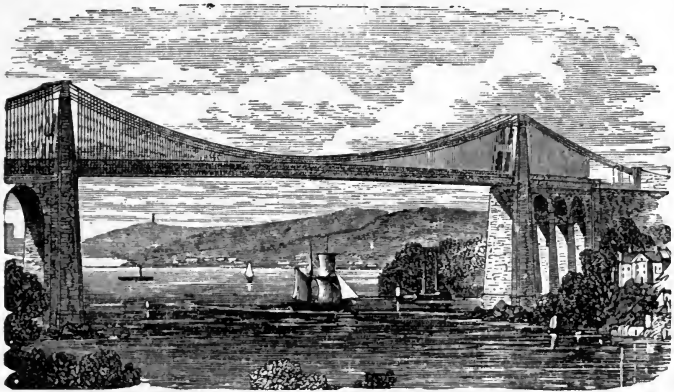


FIG. 59. MENAI BRIDGE.

Smeaton built new bridges at Perth, Coldstream and Banff, but the most celebrated bridge-builders were Thomas Telford and John Rennie (1761-1821). Telford directed his attention to the building of iron bridges. While surveyor to the county of Salop, he built forty-two bridges, four of which were of iron; as engineer to the Ellesmere Canal, he used iron troughs for his aqueducts; in 1796 he built an iron bridge at Bristol; his greatest achievement in bridge-building was the Menai Suspension Bridge on the Chester and Holyhead

road (figure 59). Rennie built a cast-iron bridge over the Witham at Boston and Southwark Bridge over the Thames (1819) with three cast-iron arches; he also built Waterloo Bridge of stone, one of the most beautiful bridges in England, and designed the new London Bridge, which, after his death, was built according to his plans by his son, Sir John.

Canals.

The first canal-maker in England was James Brindley (1716-1772), who from a millwright rose to be the greatest of canal engineers. He was first engaged in the construction of a canal by the Duke of Bridgewater, who obtained Parliamentary powers for the making of a canal to convey coals from his colliery at Worsley to Manchester (figure 60); this canal was completed in 1761, and was the first canal made in England. The result of the construction of the canal was that the price of coals in Manchester was reduced from 7d. to 3½d. the cwt. The next work was the extension of the Duke's Canal from Manchester to Runcorn on the Mersey, connecting Manchester and Liverpool; this extension was finished and opened for traffic in 1767. The result of the construction of the canal was to lower the cost of water-carriage by one-half, and to lay the foundation of the prosperity of Manchester, Liverpool, and the surrounding districts. Before the days of canals, Manchester woollens and cottons intended for exportation had been carried on horses' backs to Bewdley and Bridgnorth on the Severn, down which they were floated to Bristol, then the chief seaport on the western coast. After the opening of the canal the pack-horses were taken off and the export trade was centred in Liverpool. New harbours and docks were built, and Liverpool out-distanced Bristol and became the chief seaport on the west coast. Brindley's next canal was the Grand Trunk Canal, which connected Liverpool, Bristol, and Hull, and opened up the salt-district of Cheshire and the pottery district of Stafford-

shire. The growth of the earthenware manufacture had been hampered by defective means of communication. Of the materials used in the manufacture of pottery, flints were brought from the south-eastern ports to Hull, and then up the Trent in boats to Willington, while the clay was brought from Devonshire and Cornwall either to Liverpool, and then



FIG. 60. WORSLEY BASIN.

up the Weaver to Winsford, or to Bristol and then up the Severn to Bridgnorth and Bewdley. From the points where water-carriage ceased, the flints and clay were conveyed mostly on the backs of horses to the Potteries. The manufactured articles were returned for export by the same route.

The cost of carriage was enormous, and consequently the expansion of the earthenware manufacture was checked. The same difficulties hampered the carriage of salt from Cheshire, and of corn, coal, lime and iron-stone. The Grand Trunk Canal started from the Duke's Canal near Runcorn, passed through the salt district of Cheshire and the Potteries to Haywood, where another canal called the Wolverhampton Canal, joining the Severn near Bewdley, connected the Grand Trunk Canal with Bristol; from Haywood the Grand Trunk Canal followed the valley of the Trent, which it joined at Wilden Ferry. By means of the Trent the Grand Trunk Canal was connected with Nottingham, Newark, Gainsborough, and Hull. The first sod of the canal was cut on the 26th July, 1766, by Josiah Wedgwood, who purchased a considerable estate in Shelton, close to the projected line of the canal, and there erected his manufactory at Etruria. The effect of its construction was to reduce the cost of carriage of all articles to one-fourth of the previous rate. Cheshire salt could now be readily transported and sold at moderate prices in the Midlands. The population of the Potteries was trebled in twenty-five years, and the whole face of the country was changed. Houses, villages, towns sprang up, and the country was not more improved than the people. In connection with the Grand Trunk Canal other canals were carried out under Brindley's superintendence, the Staffordshire and Worcestershire, which connected Wolverhampton and Kidderminster with Liverpool, Hull, and Bristol; the Coventry Canal at Oxford which connected the Grand Trunk Canal at Lichfield with London and the Thames; the Droitwich Canal which connected Droitwich with the Severn at Worcester, and did a large trade in the conveying of coal and salt; the Birmingham Canal which connected Birmingham with the Grand Trunk system; the Chesterfield Canal, between Chesterfield and the Trunk, which opened up the rich mineral districts of Derbyshire. The length of the

canals laid out and principally executed by Brindley was over 360 miles (Smiles, *Life of Brindley*).

Docks and Harbours.

John Smeaton (1724-1792) was the first English engineer who attained distinction in the construction of docks and harbours. He improved or constructed harbours at St. Ives,

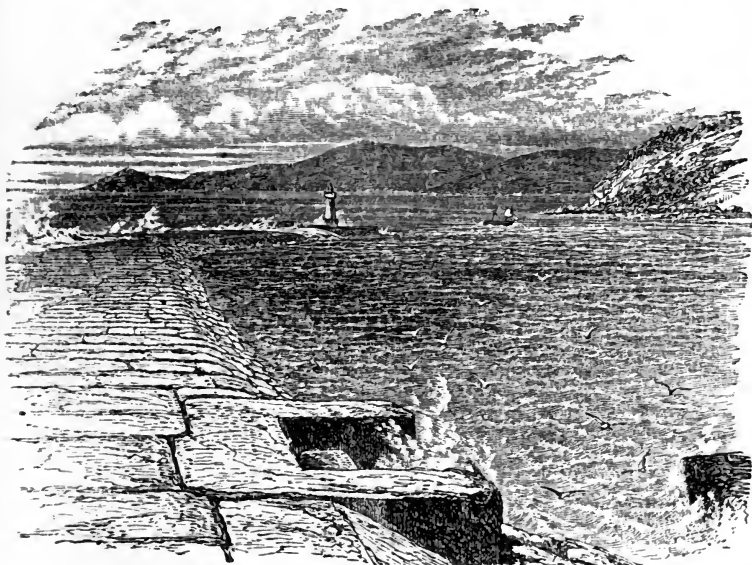


FIG. 61. PLYMOUTH BREAKWATER.

Ramsgate, Aberdeen, Portpatrick, and Eyemouth. William Jessop, Smeaton's pupil, erected the first docks of any size in London, namely, the West India Docks (1800-2). Rennie, one of the greatest of harbour and dock engineers, constructed the London Docks (1802-5) and East India Docks (1803-6), and improved or constructed harbours at Grimsby, Holyhead, Howth, Kingston, Hull, and Ramsgate; he improved the Sheerness Docks, and made a new dockyard and dry dock at

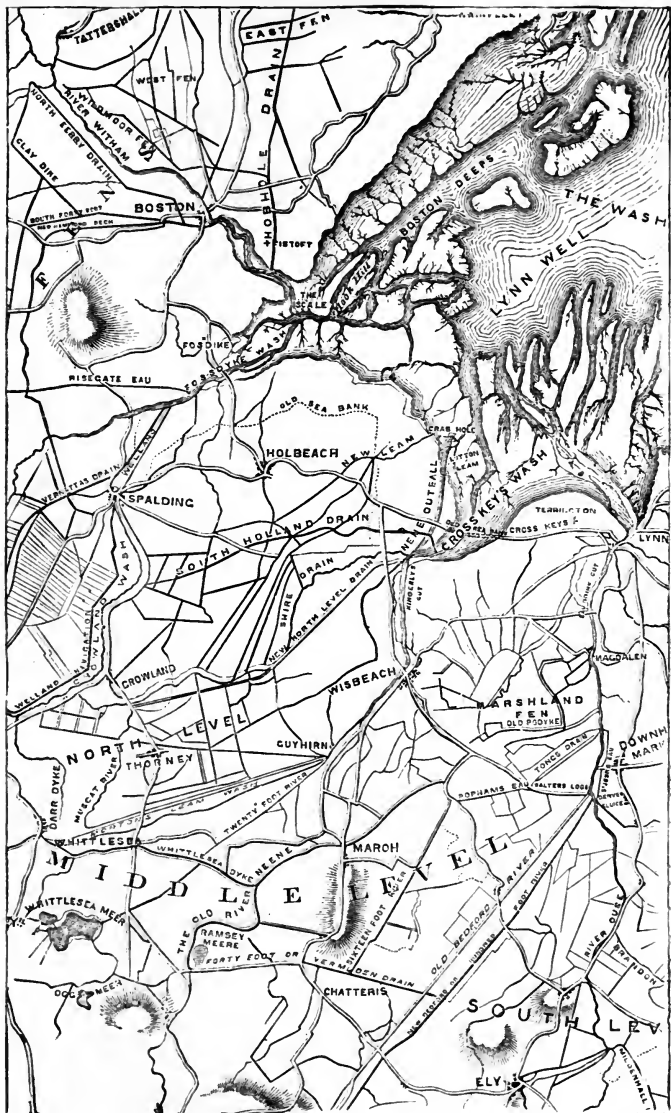
Pembroke. Perhaps the greatest of all his works was the building of Plymouth Breakwater (figure 61) to protect the Sound from the southern gales; the breakwater, which was 5,100 feet long, was begun in 1811 and finished in 1848; when completed it consisted of 3,670,444 tons of rubble and 22,149 cubic yards of masonry, "an amount of material at least equal to that contained in the Great Pyramid"; the whole cost was about $1\frac{1}{4}$ millions. Telford was also employed as a dock and harbour engineer in improving the harbours of Wick, Peterhead, Banff, Aberdeen, and Dundee, and in building St. Katherine's Dock (1824-8). One consequence of the construction of the West India and London Dock warehouses and of similar receptacles for merchandise in other ports besides London, was that Great Britain became the emporium of the trade of Spain and Portugal, of Brazil, the Spanish settlements in South America and the West Indian islands, and enormous quantities of goods were brought into this country for re-exportation.

Lighthouses.

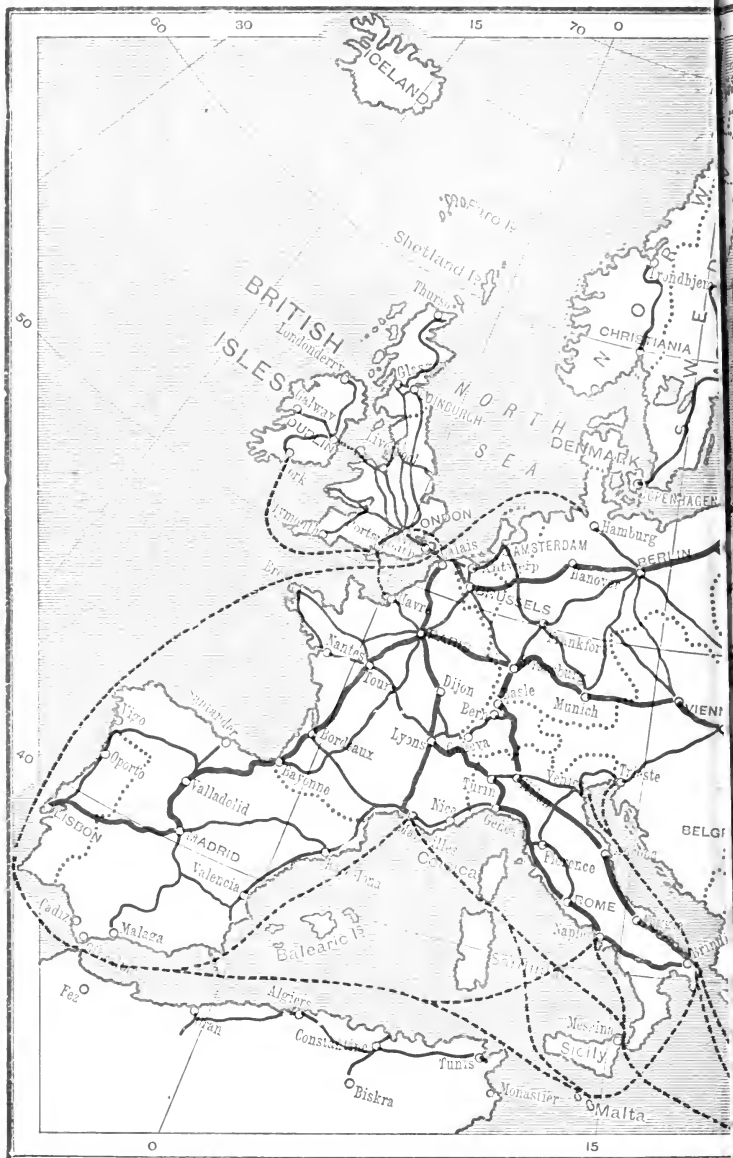
In 1717 a light was put up on the Skerries, near Holyhead. The first stone lighthouse in England was constructed by Smeaton on the Eddystone reef of rocks, near Plymouth, begun in 1756 and finished in 1759 (figure 62); the column of this lighthouse was 70 feet high and the top was 120 feet above the sea. Smeaton also erected two lighthouses on Spurn Point (1766). Rennie designed and acted as chief engineer in the building of the Bell Rock lighthouse. The navigation of the Dee to Chester was improved by lights and buoys (1776).

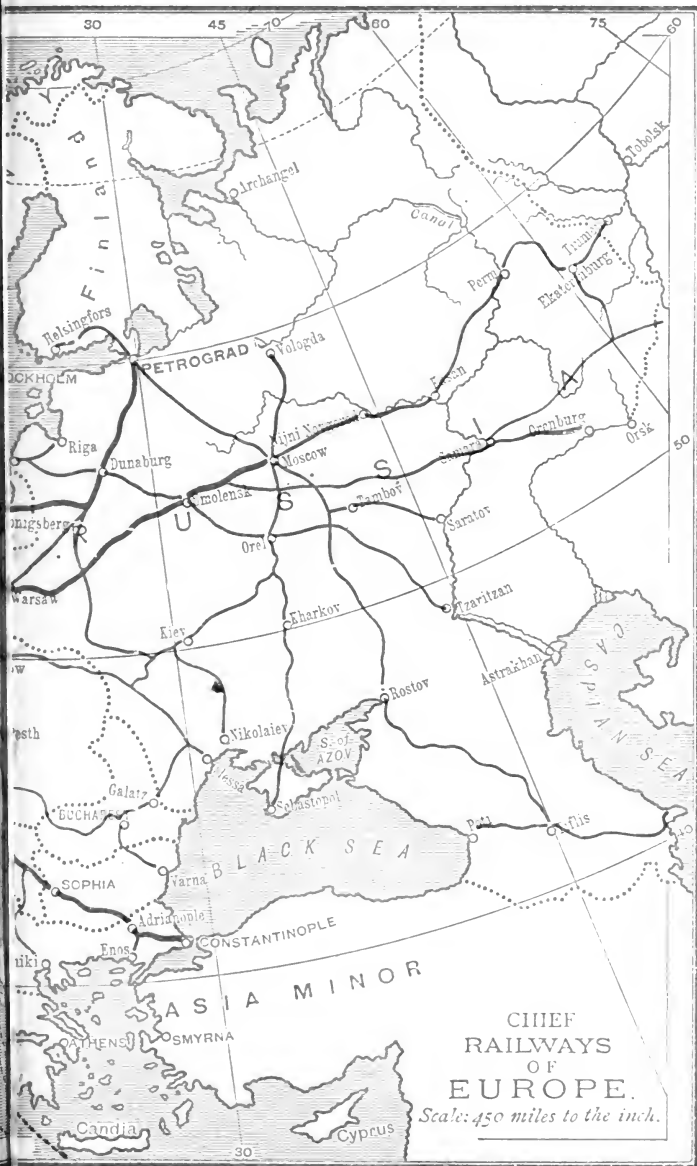
Shipping and International Commerce.

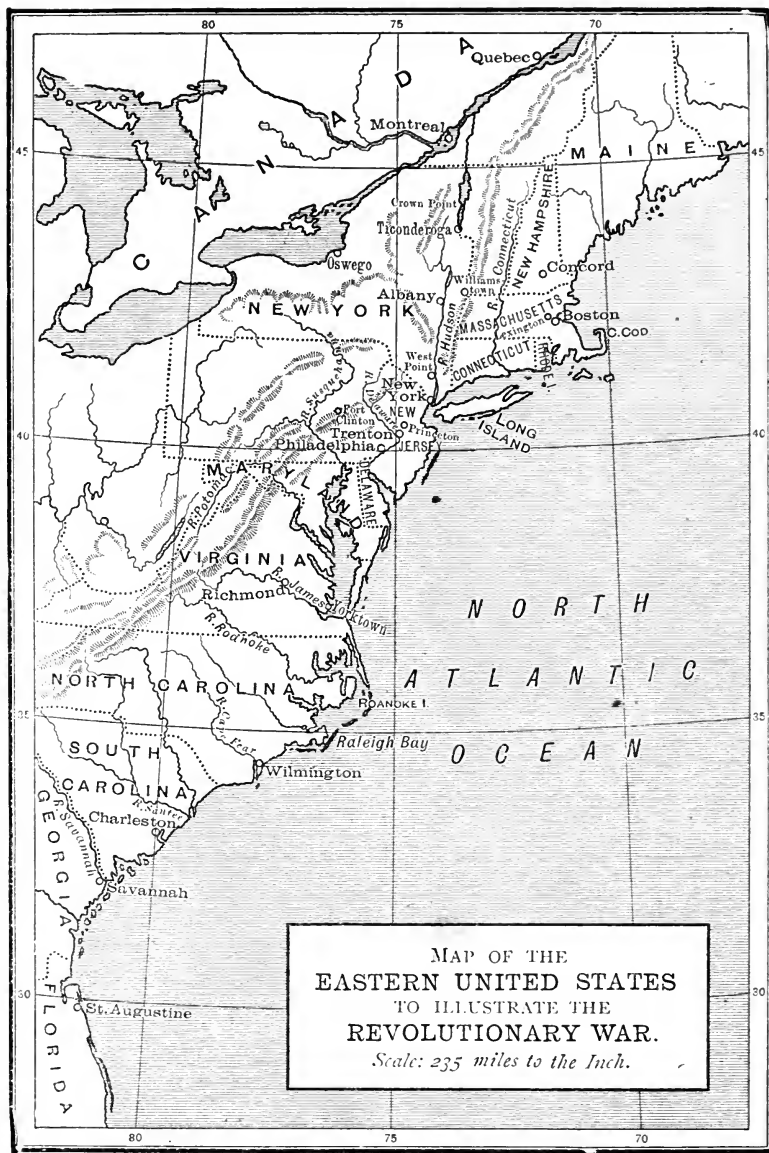
The improvement in English manufactures which began to have a world-wide reputation, gave a stimulus to the English export trade which had long been on the increase, and our dependency on foreign countries for our supplies of food developed the import trade. Pitt's commercial treaty with



MAP OF THE FENS AS DRAINED IN 1830.







France in 1786, by which both countries consented to a reduction of tariffs against each other's trade led to a considerable expansion of trade. After the recognition of the independence of the United States, English trade with America increased owing to the increased cultivation of cotton in Georgia and Carolina. In the war with France

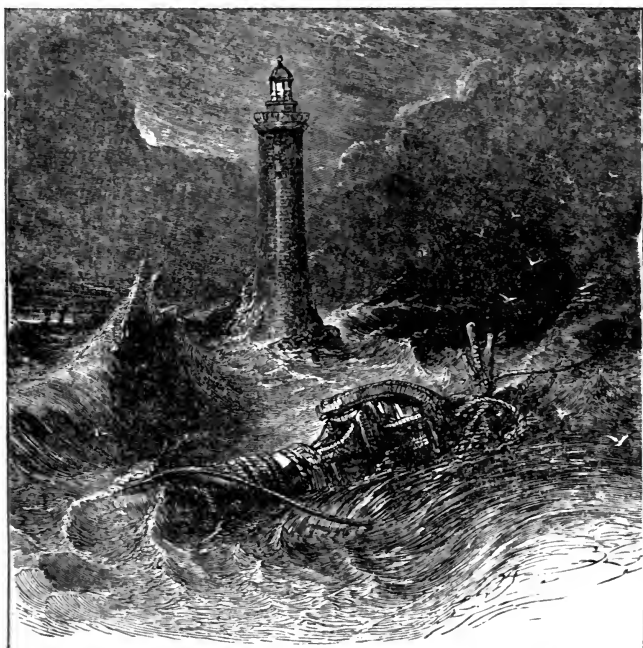


FIG. 62. EDDYSTONE LIGHTHOUSE (SMEATON'S).

which followed the outbreak of the Revolution, England, owing to her supremacy on the seas, was able to retain her maritime trade; Holland, which was forced to side with France, was injured by the loss of her carrying trade and of her colonial possessions. The short interval of peace that followed the conclusion of the Treaty of Amiens in 1802, saw

a remarkable development of English trade; the value of English exports increased from £39,700,000 to £45,100,000 (Cunningham, II., 514). On the outbreak of war in 1803, England pushed her trade in every direction, prevented the transport of other European goods, and did the greater part of the carrying trade of the world, though the United States and other neutral states began to compete with her, and profited considerably by the war through carrying the goods of the enemies of England (Cunningham, II., 518). As the neutral traders had no need of convoys and had not to pay war rates of insurance, like the English ships, the sugar of the French colonies could be imported on cheaper terms than sugar from the English colonies. It was this neutral trade that led to the Orders in Council and to the Berlin and Milan Decrees. In May 1806 the English government, with a view to striking at neutral trading, declared that the whole of the European coast from Brest to the Elbe was blockaded. Napoleon retorted by the Berlin Decree of November, 1806, declaring the British Isles in a state of blockade, that all commerce and correspondence with Britain should cease, and that all British manufactures or merchandise should be lawful prize. By Orders in Council of January and November, 1807, the English government declared that neutral vessels were not to trade from port to port on the coasts of France, or her allies, and that neutrals should only trade with a hostile port after touching at a British port and paying customs. Napoleon replied with the Milan Decree declaring that any vessels which submitted to the British regulations should lose their nationality. The Orders in Council led to difficulties with the United States, and along with the English claims to search American ships and impress British seamen found on board, led to a rupture of intercourse and eventually to war.¹ As the United States took large quantities of our manufactures and supplied us with corn and raw cotton, these troubles led to a serious disturbance of Eng-

¹ (1812-1814)

lish trade and to a commercial crisis in 1810. Napoleon's attempts to close European ports to English manufactures failed completely; he was forced to grant licences for the importation of English goods, and it is even said that his army which invaded Russia was to a great extent dressed in English cloth. The English silk trade, on the other hand, suffered considerably from the Orders in Council and Napoleon's Decrees, which produced almost a famine of raw silk in England. One result of the war, which ultimately proved permanently injurious to England and her West Indian colonies, was the stimulus given by the high price of sugar in Europe to the manufacture of sugar from beet-root. In 1801 a factory was established in Silesia, and the production was stimulated by the Orders in Council and Napoleon's Decrees. The development of English shipping may be seen from the fact that the tonnage of English ships cleared "outwards" from English ports increased from 144,264 tons in 1697, to 1,318,508 in 1809, while the tonnage of foreign ships cleared "outwards" only rose from 100,524 tons in 1697, to 674,680 in 1809. The value of the exports increased from £6,910,899 in 1720, to £58,624,550 in 1815, and the value of the imports from £6,703,778 in 1720, to £32,987,396 in 1815. The number of British ships registered in the earliest extant copy of Lloyd's Register (for the year 1744-6) was 4,500; in 1800 there were 8,271 ships registered. The ships were still mostly small compared with those of the present day. In 1764-6 most of the ships were of about 200 or 300 tons, only one ship was of 900 tons, even as late as 1830 a ship of 500 tons was considered large; of the 19,110 British ships registered in that year, only forty-three were of 1,200 tons and upwards.

Improvements in Navigation, etc.

Considerable improvements in navigation were made in the course of the 18th century. The English astronomer Halley

constructed in 1700 a chart showing the variation of the compass in all parts of the globe. In 1741 a statute was passed for a more complete survey of the west and north-west coasts of Britain and Ireland, the charts of which were very imperfect. A reward of £20,000 was offered by the English Government in the reign of Queen Anne for the discovery of a method for determining the longitude at sea, and was earned in the early part of the reign of George III. by John Harrison, who invented a chronometer by which longitude could be determined; this chronometer is perhaps "the greatest invention in navigation since the mariner's compass" (Payne, *European Colonies*, 121).

Insurance. Marine.

The earliest companies for effecting insurances on ships were the London Assurance Corporation and the Royal Exchange Assurance Corporation (1720), both of which are still in existence. The underwriters not belonging to these two companies were in the habit of frequenting Lloyd's coffee-house; they secured the property in Lloyd's List or Register of Shipping, and obtained in 1774 new quarters in the Royal Exchange, where the new Lloyd's coffee-house was established. In 1779 the committee of management of Lloyd's drew up a general form of policy, which is still adhered to, and which has been taken as the model for marine insurance business all over the world (Cunningham, II., 291). The increase in risk which British shipping ran during the wars of the 18th century caused a great expansion of the business of marine insurance. The work of arranging ships in classes according to their age and character, and of surveying ships for this purpose was undertaken by the committee of management of Lloyd's.

Fire.

The business of fire insurance was still further developed by the various insurance companies founded in the 18th

century. The Sun Fire Office was founded in 1710, the Union in 1714, the Westminster in 1717; the London Assurance Corporation and the Royal Exchange Corporation did the business of fire as well as marine insurance. The Salop office was formed in 1780, the Phoenix in 1782, the Norwich Union in 1797.

Life.

The business of Life Insurance was developed more slowly. The Amicable Society, for a perpetual assurance office—a kind of tontine society—was founded in 1706; the London Assurance and the Royal Exchange Assurance Corporation did a little business in the way of life insurance, but no regular life assurance office was started till 1762, when the Equitable Society was founded. This was followed by four others, of which the Pelican, founded in 1797, is still in existence. There were eight offices doing life insurance business at the end of the 18th century.

Stock Exchange.

Up to 1773 the London stockbrokers did their business in and about the Royal Exchange. In 1773 they formed themselves into an association under the name of the Stock Exchange, and removed to Capel Court.

Walpole.

A system of depositing imported goods for re-exportation in warehouses appointed by the Commissioners of Customs had been commenced in 1700 in the case of East Indian silks, muslins, and painted calicoes to prevent their being thrown on the home market and competing with English manufactures. This system, which was the origin of bonded warehouses, was developed by Sir Robert Walpole; customs duties were only paid when the goods were taken out of the warehouses on sale in the country, or were not levied if they were exported directly; by this means goods could be imported into England and re-imported with-

out the payment of duty; Walpole applied the system to tea, and was thus able to reduce the duty on importation and to check smuggling. He attempted to apply the same system to wine and tobacco, but was met with the strongest opposition. Walpole, by improving the system of collection of customs duties, was able to diminish smuggling; he reconstructed the tariff, and encouraged manufacture by removing import duties on raw materials and export duties on all British manufactured goods with a few exceptions.

Pitt and Adam Smith.

By the wars of the 18th century the National Debt was enormously increased, and in 1815 had reached the sum of £860,000,000. The enormous loans raised for the purpose of carrying on the wars with France at the end of the 18th century made money scarce, and in 1797 the Bank of England was allowed to suspend cash payments and pay in notes. The issue of notes for £5 and smaller amounts by the Bank was sanctioned, and cash payments were not resumed till 1819. Improved methods of taxation to meet the constantly increasing charge of the National Debt were devised by Lord North and Pitt, who were both influenced by the teaching of Adam Smith, the founder of modern political economy, who published his "Wealth of Nations," his chief treatise, in 1776; while the full effect of his teaching was not felt till the 19th century, some of his ideas were carried into effect before the end of the 18th. At the time of the publication of the "Wealth of Nations" the principles of the Mercantile System had ceased to be applicable to English industry; the Mercantile System had in effect done its work by fostering national power and promoting the growth of the mercantile navy which was the basis of the greatness of England. But by the middle of the 18th century the conditions of industry had been so changed, that the regulation of industry by government was neither desirable nor

practicable. The policy of the Navigation Acts had accomplished its purpose, but the Acts were rendered antiquated by the rebellion of the American colonies. The times were ripe therefore for Adam Smith's work, which dealt with the laws relating to the production and distribution of wealth apart from the question of national power, and which attacked the Mercantile System as it was declining, and preached the doctrines of free trade by showing that government regulations of industry were mischievous. He defended the Navigation Acts, as passed in the interests of national security but attacked the policy of the Statute of Apprentices of Elizabeth, the Settlement Acts, and similar attempts to foster industries, and maintained that trade grew best when let alone by government. The "Wealth of Nations" was the first complete treatise on the subject of Political Economy. Several works on economical subjects had been published, first in Italy, and afterwards in England and France; in the latter country the theories of the Physiocrats (writers of the school of Quesnay, whose chief works appeared about 1758) attracted considerable attention; according to their theories, agriculture was the only source of wealth. The English writers on economical subjects before the time of A. Smith were chiefly either Bullionists or Mercantilists. According to the Bullionist theory the wealth of a nation depended on the store of precious metal which it contained; according to the Mercantilists, who developed the theory of the balance of trade, wealth depended not so much on stores of gold and silver as on the profitable exchange of native for foreign products, and on the ability of a nation to sell goods for more than they cost and obtain a monetary advantage in the transaction. A. Smith was the first writer to deal in a really scientific manner with the problems relating to the production and distribution of wealth. The principles of free trade, which were advocated by A. Smith, did not gain complete acceptance till the 19th century, but tendencies in that direction, such for instance as are to be seen in Pitt's

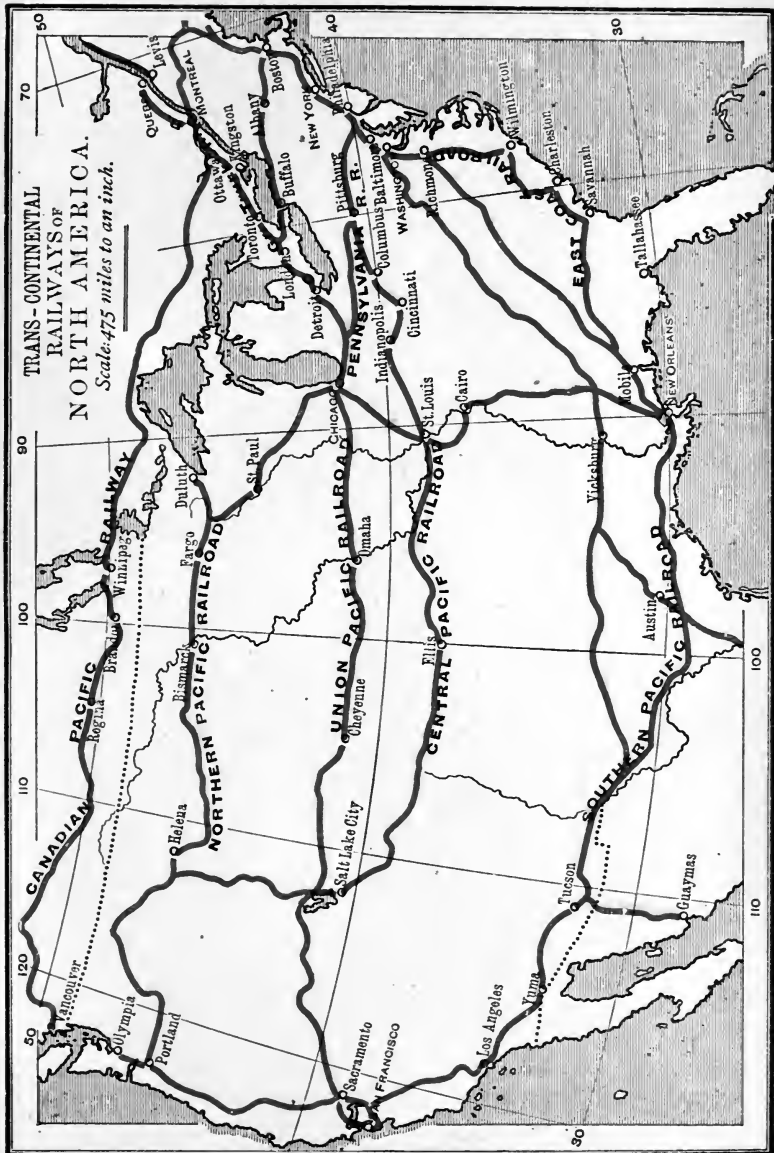
commercial treaty with France of 1784, may be traced in the 18th century. Expedients for taxation which were employed in Holland, and which Adam Smith discussed, were adopted by Lord North, such as a tax on servants (1777), another on auctions and on property passing on death. Pitt, who became Prime Minister in 1783, borrowed from the "Wealth of Nations" the principles on which he revised the whole scheme of taxation. He reduced the duty on tea, for instance, from 119 to 12½ per cent., levied additional duties on windows and houses, and grouped together the taxes on carriages, servants, horses, etc., which were known as the Assessed Taxes and replaced the complicated customs duties by a single tax on each article; the methods of collection were improved, and the proceeds of the whole were lumped together in the Consolidated Fund instead of being kept under separate accounts. To provide for the reduction of the National Debt, a sinking fund was established by taking certain sums out of the Consolidated Fund, when there was a considerable surplus, and vested annually in the hands of commissioners, who were to invest it and apply the proceeds to the reduction of the debt. In 1792 he repealed the taxes on carts and waggons, the window tax on small houses, and a portion of the tax on candles. He used the expedient which Adam Smith had recommended, and Lord North attempted, of taxing property that passed on death; Lord North's tax had been evaded, and Pitt substituted for it a Legacy duty on property in the hands of the executors before it was distributed. In 1798 Pitt imposed an income tax of 10 per cent. on incomes of £200 and upwards, and a smaller graduated tax on incomes between £60 and £200.

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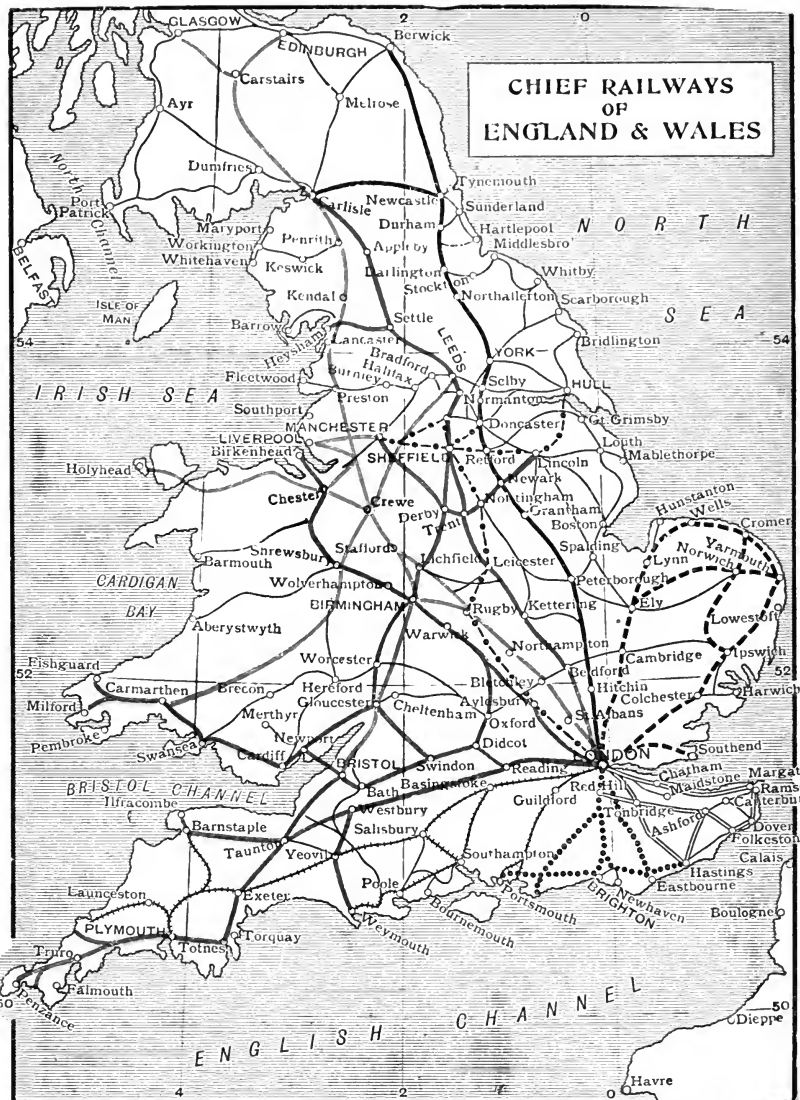
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Scale: 475 miles to an inch.



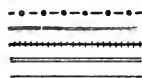
CHIEF RAILWAYS OF ENGLAND & WALES

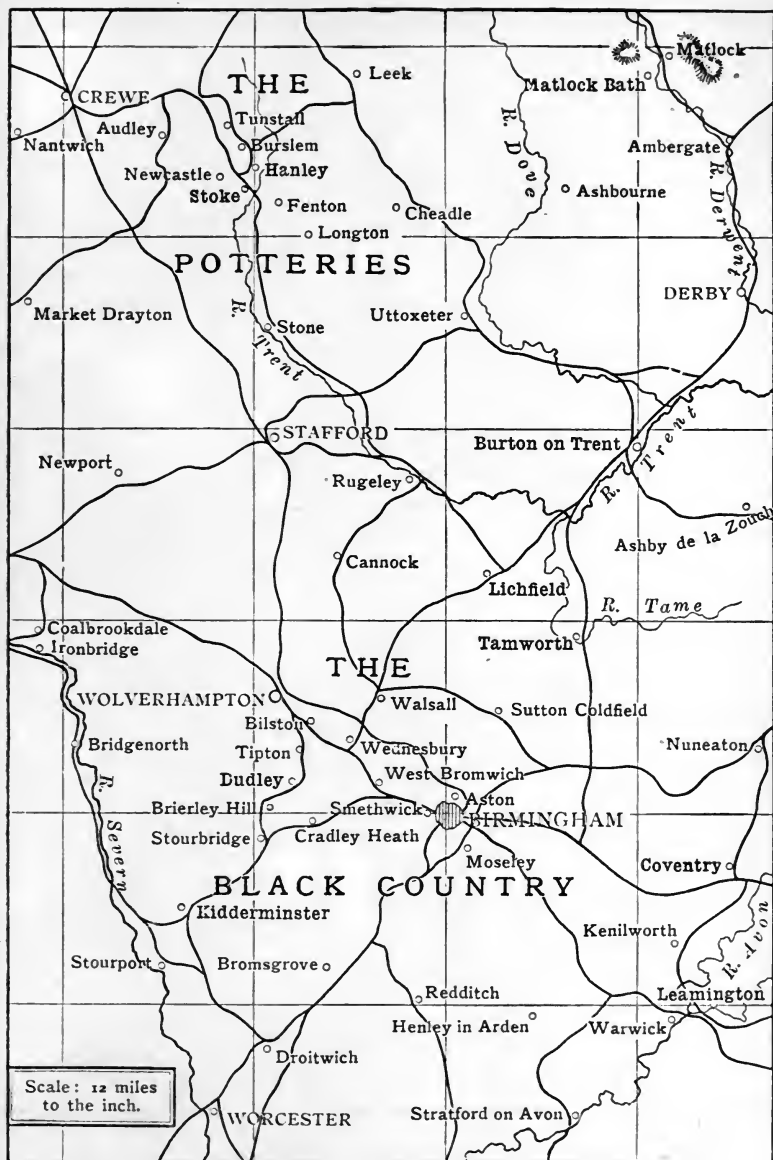


L.B. & S.C. Ry.
MIDLAND "
L.N.W. "
G.N. & N.E. "
G.E. "

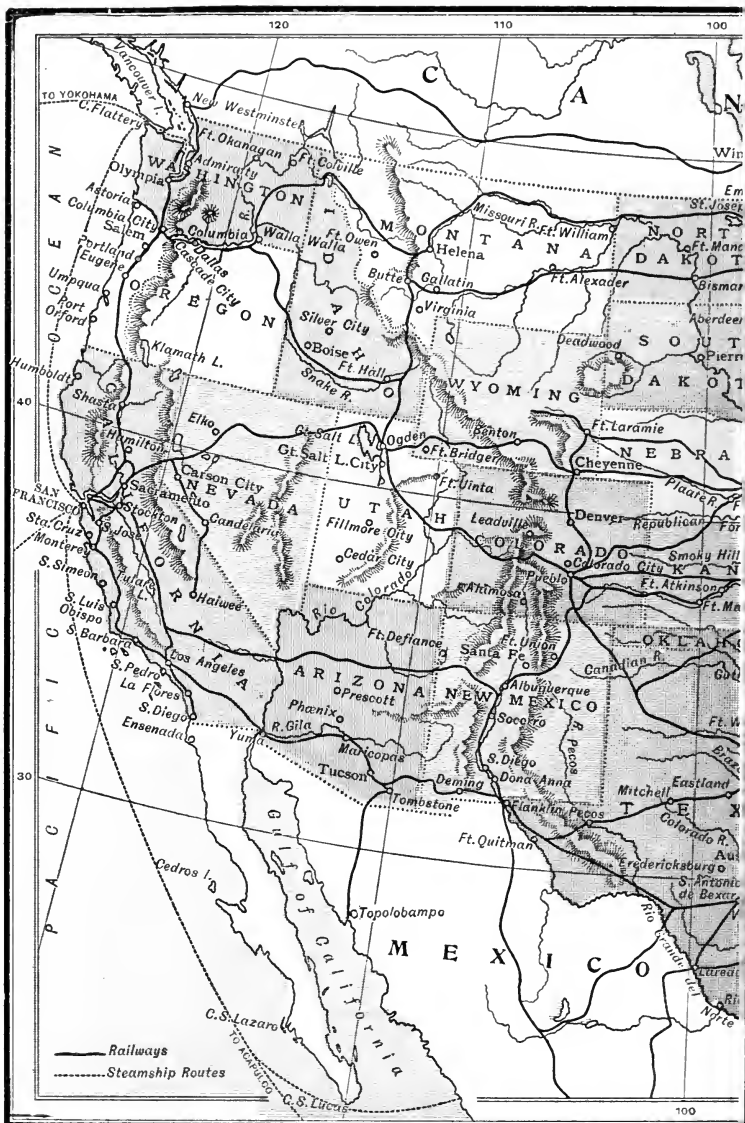


G.O. Ry.
L.W. "
L. & S.W. "
S.E. "
OTHER LINES

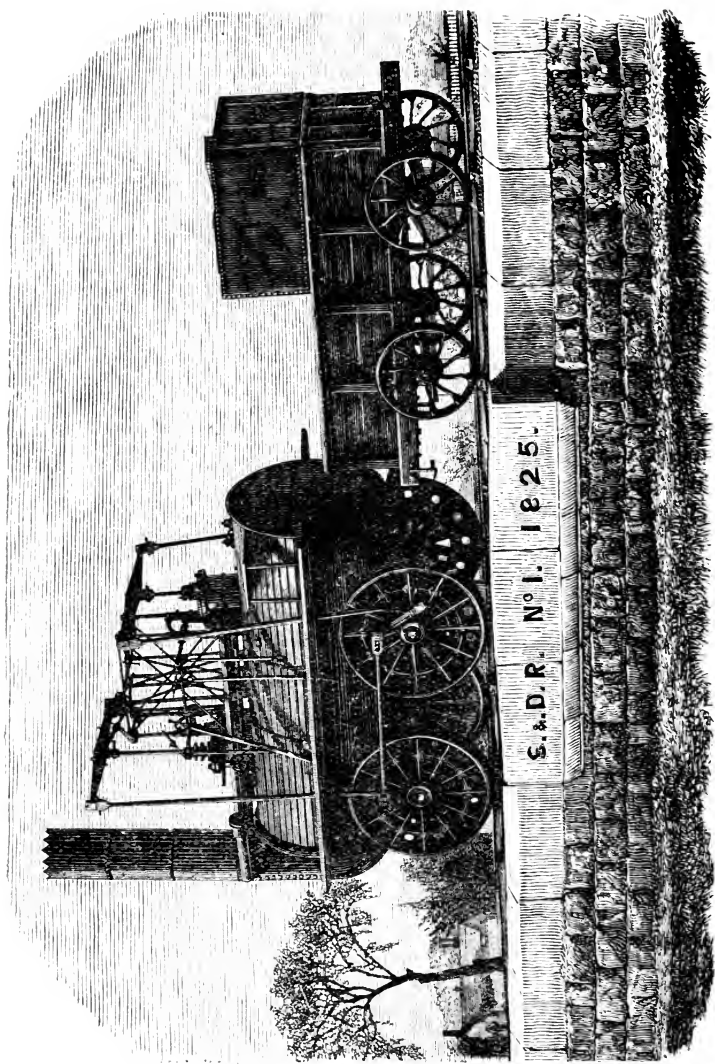




MAP OF THE POTTERIES AND THE BLACK COUNTRY.







GEORGE STEPHENSON'S NO. 1 ENGINE USED ON THE STOCKTON AND DARLINGTON RAILWAY.

CHAPTER IV.

The Trade of the Nineteenth Century.

The chief features of this period are:—the growth of the railway system and of steam navigation, the increase of the mercantile marine, the expansion of the manufactures of textile fabrics, iron and steel goods, the further development of coal-mining, the extended use of machinery, the application of discoveries in electricity and other branches of science to commercial purposes, an enormous increase of the population of Great Britain and increased dependence on foreign supplies of food, and the development of the colonial empire of Great Britain; in financial and commercial legislation the period is marked by the abolition of the last relics of the mercantile system and the complete triumph of free trade, by the establishment of the system of limited liability companies, by the removal of the restrictions on the combination of workmen and the legislative protection of factory workers.

The Railway System.

The "Father of Railways" was George Stephenson (1781-1848), the inventor of the first locomotive engine that was commercially successful. Various attempts had been made before and after Watt's invention of his steam-engine to produce a locomotive engine. Murdock in 1784 had made a model which travelled on a road. Trevithick, Murdock's pupil, after taking out a patent in 1802 for a steam-coach, and constructing one which travelled on the roads, applied himself to the construction of an engine to work on the tramroads or railroads which had been constructed in a great number of collieries. Trevithick constructed for the railroad at the Pen-y-darran Colliery a locomotive engine which dragged several loaded waggons, but it broke the tram-plates and ran off the road. Matthew Murray constructed for Blenkinsop of Leeds in 1812 an engine which drew coal-waggons on the

railroad from the Middleton Collieries to Leeds, and worked for many years, and was the first locomotive engine regularly employed for commercial purposes. Blackett, the owner of Wylam Colliery, near Newcastle-upon-Tyne, had engines made which combined Trevithick's and Blenkinsop's inventions. Stephenson constructed a locomotive engine which in 1814 was placed on the railroad at the Killingworth Colliery, near Newcastle-upon-Tyne, and continued regularly at work for some time, but its use effected very little saving, either in time or in money, as compared with the use of horsepower, while the noise of the steam issuing from the cylinder was a great hindrance and nuisance. Stephenson remedied this last defect by the invention of the steam-blast, by which the steam was conveyed into the chimney of the engine, and so increased the draft and the intensity of the combustion of the furnace, and doubled the power of the engine. In 1815 he patented his invention, and constructed a locomotive which is the type of the present railway engine; it was tried at Killingworth in 1816, and continued in work there till 1879. In 1819 he built several locomotives and laid down a railroad for the Hetton Coal Company, from their Hetton Colliery to the banks of the Wear. He then started an engine factory at Newcastle, and made several other engines. The first railway for general traffic on which locomotive engines were used was the Stockton and Darlington line, which was opened in 1825. Stephenson suggested the use of locomotive engines for this line, and became engineer to the promoters. The line was at first worked partly by horses and partly by engines; it proved a great commercial success, and a great demand sprang up for the conveyance of passengers, for whom a railway coach, the "Experiment" (see figure 63), drawn by horses, was first used. Afterwards a mixed train for passengers and goods was introduced on the line. Stephenson's No. 1 engine (see figure opposite page 225), which was used on this line, continued working till 1846.

The next railway to be opened was the Liverpool and Manchester Railway (1830), for which Stephenson built his engine called the Rocket, and which was connected by other lines subsequently built with Bolton, Wigan, Warrington and Birmingham (1836). The first railway in the neighbourhood of London was the one from London to Greenwich (1836). The London and Birmingham Railway (now part of the London and North Western Railway) was laid out by George

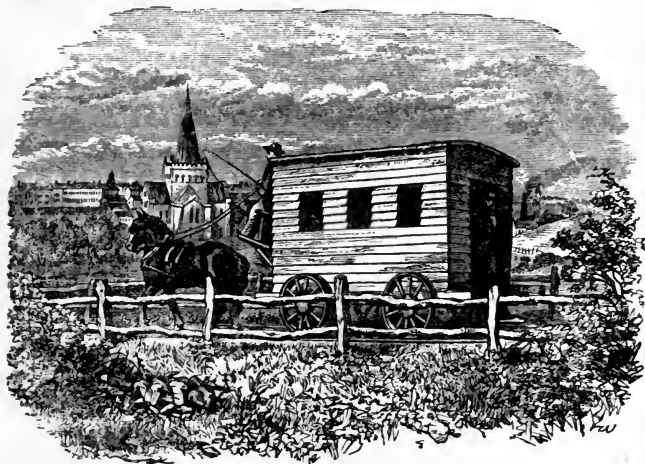


FIG. 63. THE FIRST RAILWAY COACH, THE "EXPERIMENT."

Stephenson and his son Robert, and was finished in 1838. Within a few years afterwards most of the other great trunk railway lines were commenced, viz., the Great Western, the Eastern Counties (now the Great Eastern), the Midland, the Great Northern, the London, Brighton and South Coast, and the London and Southampton (now the London and South Western). As soon as railways began to be successful, the prices of railway shares rose, and a considerable amount of speculation and gambling followed. The years 1845 and 1846 saw a "railway mania"; the inflation of railway shares,

caused by excessive speculation, led to a reaction and a fall in prices of shares and to many collapses.

The example set by England in the building of railways was followed by foreign countries, and Stephenson was called

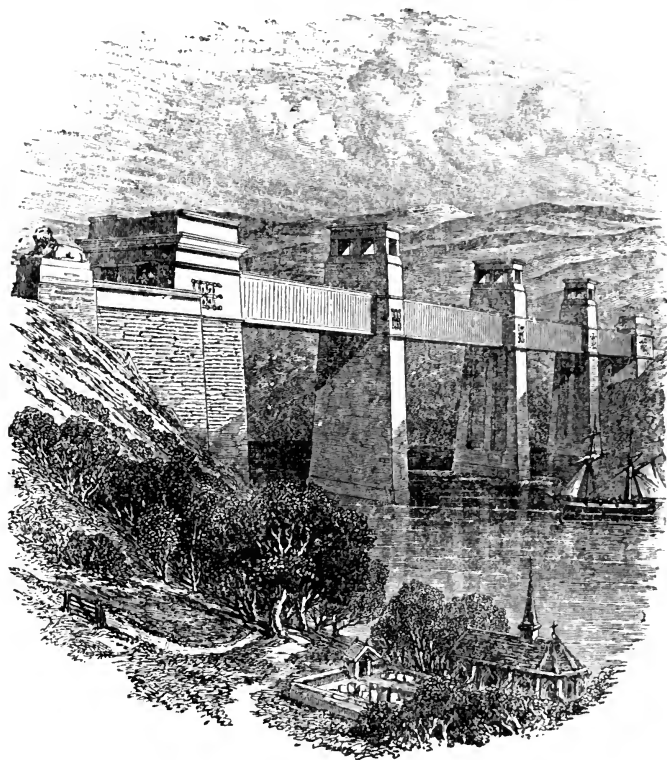


FIG. 64. THE BRITANNIA BRIDGE.

in to advise on the extension of railways in Belgium, France and Spain. George Stephenson began to retire from active business in 1840, but his place was taken by his son Robert, while other railway engineers came to the front, the most famous of whom was I. K. Brunel, the engineer of the Great

Western line and the inventor of the broad gauge. One of the greatest works of Robert Stephenson was the completion of the Chester and Holyhead line, for which he designed and constructed the Britannia Tubular Bridge (see figure 64) near to Telford's suspension bridge over the Menai Straits.

From the days of Stephenson to the present time the railway system has been expanded and developed in all the civilised countries of the world. The length of lines opened for traffic in the United Kingdom increased from 6,621 miles in 1851 to 23,205 in 1908.

Results of the Railway System.

The connection of the different parts of the United Kingdom with one another by railways promoted the growth of towns and the extension of the residential area around towns, cheapened the prices of goods, secured a more regular and economical supply of food and coal, developed the mineral resources of the country, and raised the value of land in districts accessible by railways. London and the large towns are now fed from day to day by the railways which bring in supplies of meat, fish, vegetables, milk, butter, eggs and other perishable articles of food. The extension of railways made communication between different parts of the country easy and rapid. In 1781 it took thirteen days for a person living in Birmingham to send a letter to, and receive an answer from a correspondent in Cornwall; now a letter can be sent to, and an answer received from any part of England in one, two or three days at the most. Correspondence by means of the railways could be carried on more cheaply as well as more rapidly. Before the introduction in 1840 of the penny post, which was made practicable by the railway system, the postage of a letter from London to Edinburgh cost 13d., and the general average charge outside London was between 7d. and 7½d.; the introduction of the penny post, which was due to the efforts of Sir Rowland Hill,

led to an enormous increase in commercial and other correspondence. The facilities of communication afforded by the railways also increased the supplies of labour by enabling labourers to move more easily to places where there was a demand for them, and one of the causes of pauperism, the stagnation of numbers of the working classes in places where there was not sufficient employment for them, was thus removed.

With the development of railways the importance of canals as a means of transport was much diminished. Many of the canals have passed into the hands of railway companies. In 1905 there were 4,673 miles of canals in the United Kingdom; 1,363 miles of these were owned or controlled by railway companies.

Steam Navigation.

The earliest steam-boat of any practical value was one constructed for Patrick Miller, and fitted with engines designed by William Symington, and tried in 1788 on Dalswinton Loch, on which it travelled at the rate of about five miles an hour. In 1801 Symington was employed by Lord Dundas to build a steam-boat for use on the Forth and Clyde Canal; and, availing himself of Watt's invention, he fitted a new engine in a boat called the *Charlotte Dundas*, which carried twenty passengers and towed two barges of seventy tons burden, at the rate of $3\frac{1}{4}$ miles an hour, in the teeth of a strong gale, but was afterwards laid aside, as injury to the banks of the canal was apprehended from its use. Meanwhile, experiments of a similar kind had been made in America, and Robert Fulton, an American, saw Symington's boat in 1802, made notes and sketches of it, had a boat called the *Clermont* (figure 65) built and fitted with one of Boulton and Watt's engines, and launched on the Hudson River in 1807. This boat, continued to ply on the Hudson for several years, and was the first steam-boat in the world that was regularly used for traffic. In 1809 another steam-boat was built and launched on the St. Lawrence. The first steam-boat that plied regularly for traffic on British waters was the *Comet*

(figure 66), which was designed by Henry Bell, of Helensburgh, and began to run between Glasgow and Greenock in 1812. In the following year a number of steam-boats was built for river traffic on the Humber, the Thames, the Mersey, and other rivers. The first sea-going steamer was the *Rob Roy*, of ninety tons burden, trading between Glasgow and Belfast from 1818 onwards. Soon afterwards regular lines

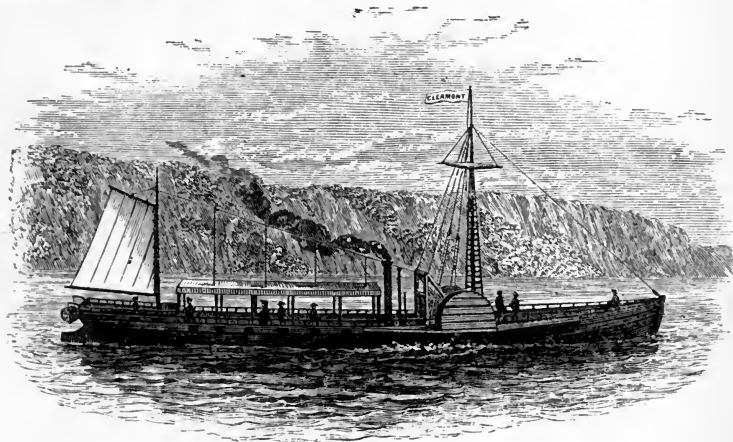


FIG. 65. THE "CLERMONT."

of steamers were started for the Holyhead and Dublin mail-service, for trade between Liverpool, Greenock, and Glasgow, and between Leith and London. In 1824 the General Steam Navigation Company was formed, and established lines of steamers between London and the chief towns and continental ports.

The Transatlantic Trade.

The first steam-ship that crossed the Atlantic for trade was the *Savannah*, an American sailing vessel with auxiliary steam-power, which arrived in Liverpool from Savannah (Georgia) in 1819, after a voyage of twenty-six days. In

1833 the steam-ship *Royal William* made the voyage from Quebec to Gravesend in forty days. Regular voyages across the Atlantic began in 1838 with the *Sirius* (from Queenstown to New York) and the *Great Western* (from Bristol to New York). In 1838 the Cunard Company was founded for the conveyance of the mails to North America by a line of steamers. The *Britannia*, the first of the Cunard ships, sailed

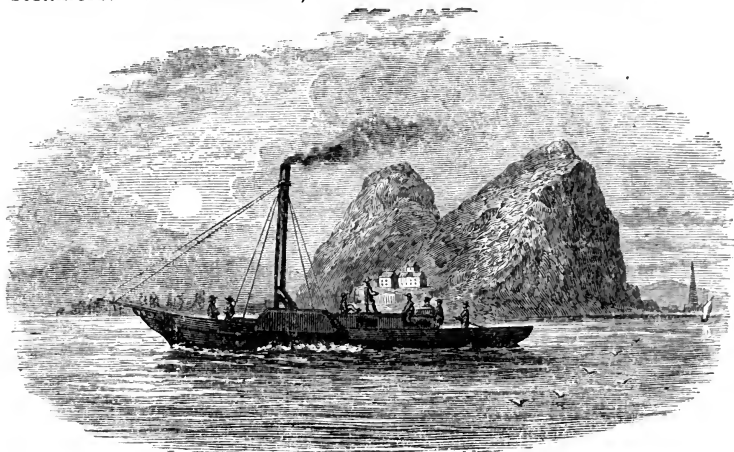
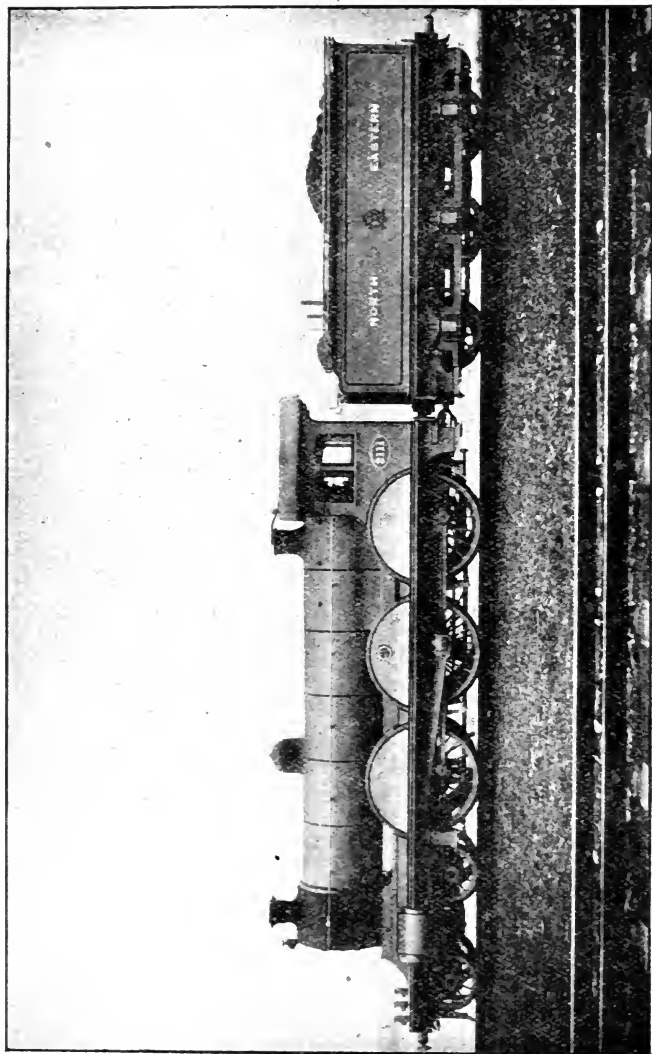
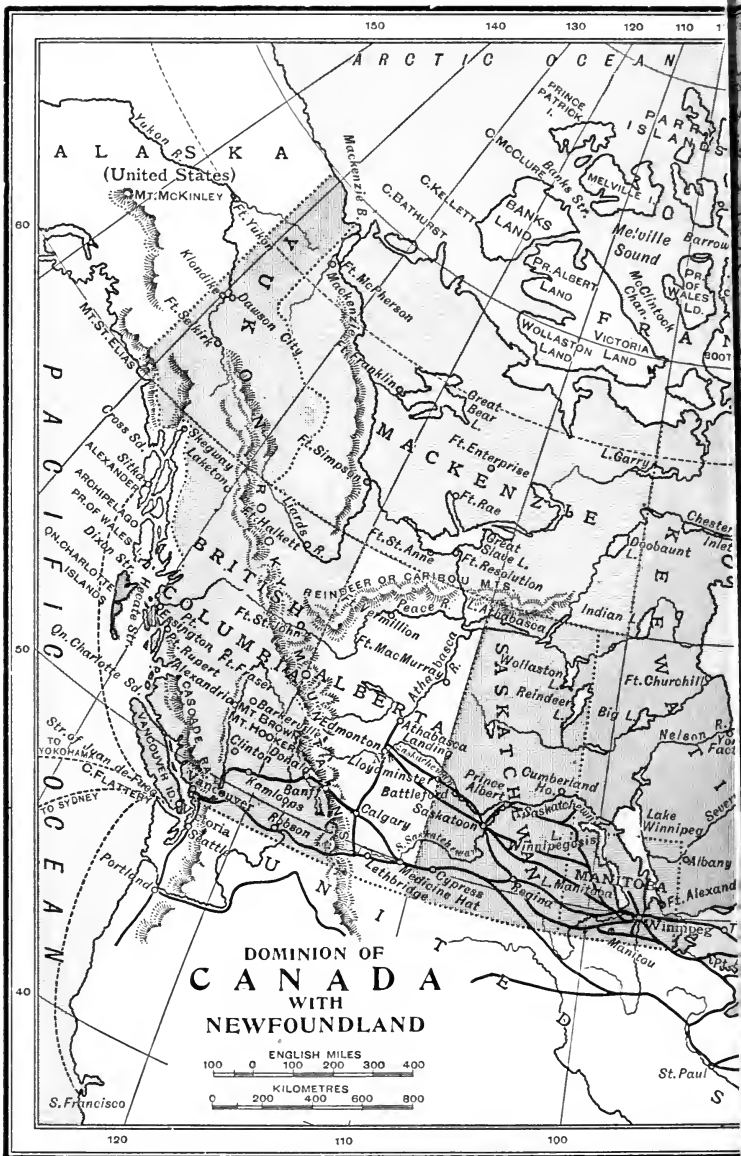


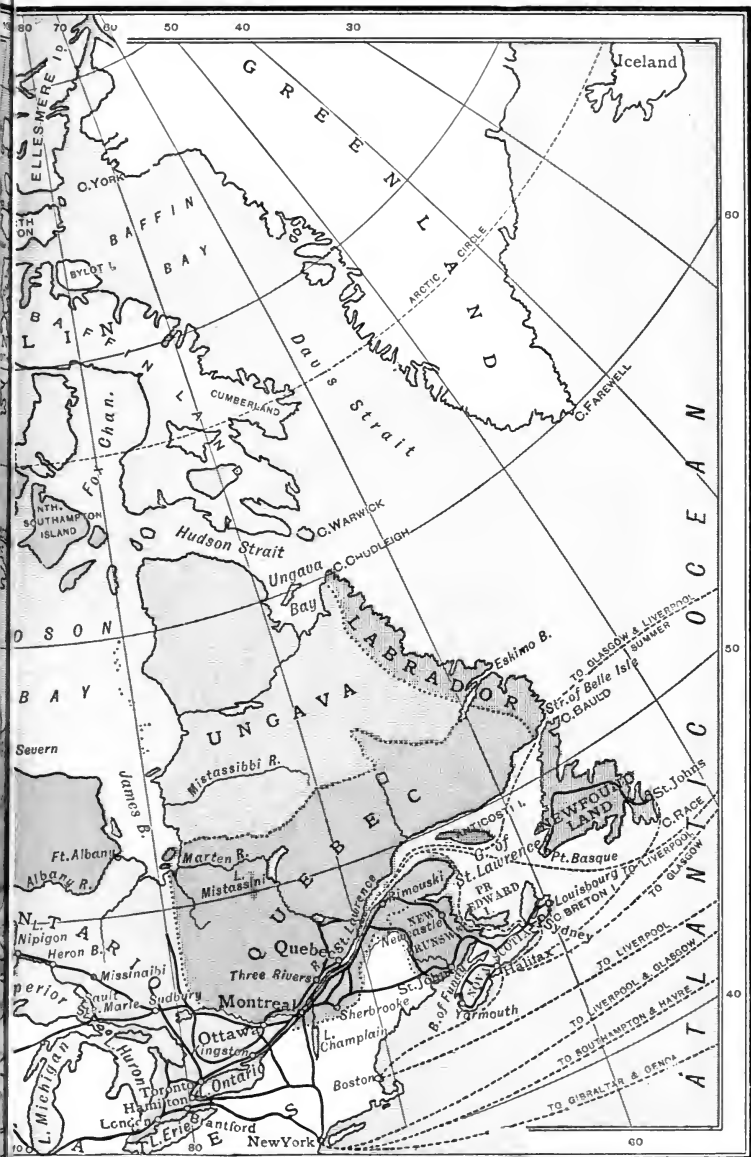
FIG. 66. THE "COMET."

from Liverpool in 1840 and attained an average speed of about eight and a half knots an hour. Other boats were soon added to the Cunard Company's fleet, and a vigorous competition ensued with American and other English companies; an American line of steamers, called the Collins line, began running in 1850 and continued till 1858, when it was discontinued as a losing concern; after 1858 the Transatlantic passenger trade was for some time chiefly in English hands. Of the other lines started for the Transatlantic trade with the United States and Canada, the chief are:—The Inman, now called the American (1850), the Allan (1854), the Anchor (1856), the



NORTH-EASTERN RAILWAY COMPANY'S SIX-COUPLED EXPRESS GOODS ENGINE.



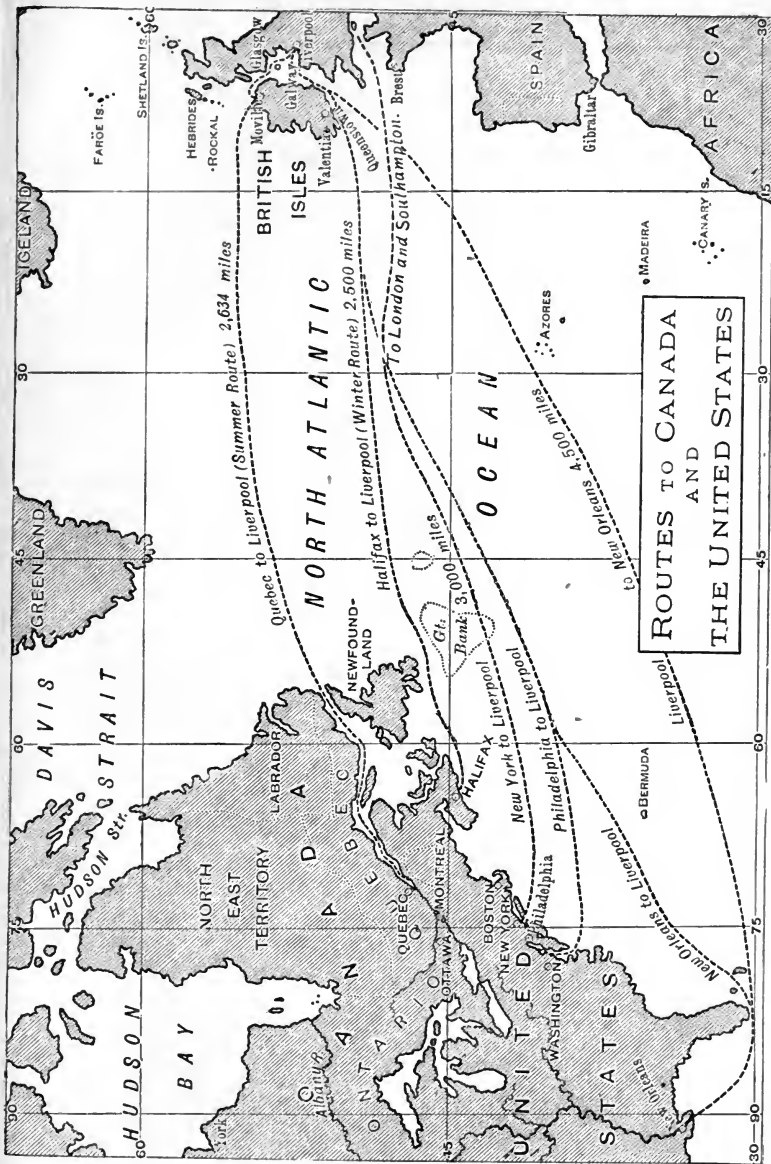


SCOTTISH RAILWAYS.

English Miles.

0 10 20 30 40 50





White Star (1871) and Dominion (1872), the American (1873), Wilson (1875), Leyland (1876), Wilson's and Furness-Leyland, Prince, Atlantic-Transport (1886), Canadian Pacific Railway, and Manchester; of Continental lines the most important are the Hamburg-American (1856), the North German Lloyd's (1856), the Belgian-American or Red Star (1873), the Dutch Holland-America (1872), and the French Compagnie Générale Transatlantique (1862).

West Indian, South American and Pacific Trade.

For the West Indian trade the Royal Mail Steam Packet Company was formed in 1841 to convey the mails between England and the West Indies, and afterwards to the Isthmus of Panama, Brazil, and the River Plate. The Imperial Direct West India Mail Service was recently formed by Elder, Dempster and Company for direct trade between Bristol and Kingston, Jamaica. The Pacific Steam Navigation Company was formed in 1840 for the rapidly growing trade with New Granada, Bolivia, Peru and Chili, and afterwards extended its operations to the west coast of South America and the River Plate. The construction of a railway across the Isthmus of Panama and the opening up of the Pacific territories of the United States, in consequence of the discovery of gold in California in 1847, made increased means of communication between England and America necessary. In 1855 Mr. Alfred Holt began to despatch steamers to trade between Liverpool and Colon, the Atlantic terminus of the Panama Railway, and in 1863 the West India and Pacific Steam Navigation Company was formed to supply steamers for the trade between Liverpool and Mexico, Honduras, Venezuela and the Windward Islands. Other lines for the West Indian and South American trade are Elders and Fyffe's Shipping Ltd. (Manchester and Bristol and Costa Rica),

F. Leyland & Co. (Liverpool and the West Indies), Larrinaga (Liverpool and Havana), Houlder (London and Buenos Ayres), Kosmos (London and Monte Video, Valparaiso and Callao), Lamport and Holt (London, Liverpool and Callao), David McIver (Liverpool and Buenos Ayres), and Booth (London and Brazil).

Trade with the East. The Overland Route.

The first steam-ship to double the Cape of Good Hope and reach India from England was the *Enterprise* (fig. 67), which

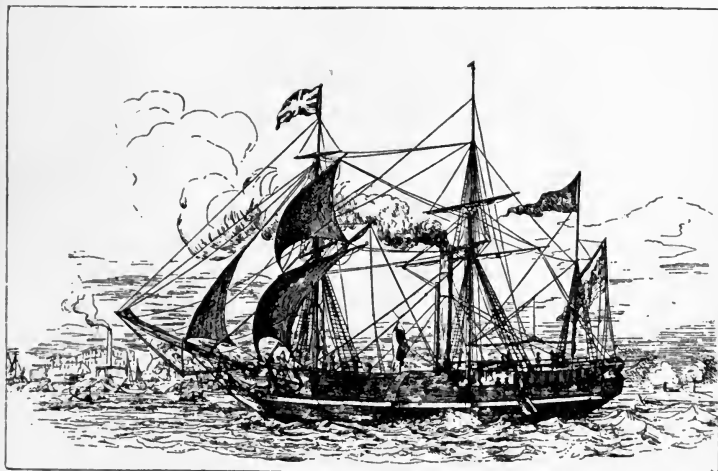


FIG. 67. THE "ENTERPRISE."

reached Calcutta in 1825 in 113 days. Attention meanwhile had been directed to the shorter overland route by way of the Isthmus of Suez and the Mediterranean, and the old route to the East by way of the Mediterranean, which had been abandoned since the 16th century, was reopened. The pioneer of the overland route was Lieutenant Thomas Waghorn, who in 1829-30 carried despatches for the East India Company from London via Trieste, Alexandria,

Suez and the Red Sea to Bombay. In 1830 the East India Company established communication by a steamship, the *Hugh Lindsay*, between Bombay and Suez; from 1835 the mails were taken to Alexandria in Admiralty packets and were then conveyed overland to Suez under the supervision of Waghorn; from Suez the *Hugh Lindsay* took them to Bombay. The Peninsular and Oriental Steam Navigation Company (generally known as the P. and O.), which grew out of a small company called the Peninsular Company, formed to carry the mails between England and the Peninsula of Spain and Portugal, in 1840 established a line of steamers for the conveyance of mails running direct from England to Alexandria, and touching only at Gibraltar and Malta; in 1842 the P. and O. Company established a line of steamers trading between Suez and Calcutta, Madras and Ceylon, and subsequently extended this service to Penang, Singapore and Hong Kong; in 1854 it took over the conveyance of the mails between Suez and Bombay; from 1853 onwards it carried the mails between Singapore and Sydney, and subsequently established a line of steamers between Point de Galle and Sydney, and brought the Australian colonies into direct communication with England, India and China.

Suez Canal.

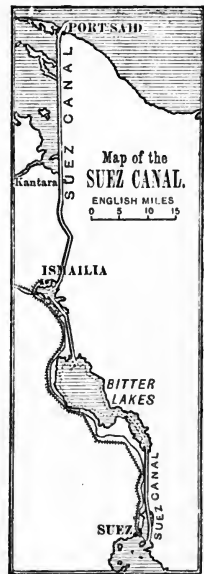
The re-establishment of the overland route led to the construction of the Suez Canal, commenced in 1857, and opened for traffic on 17th November, 1869. The advantages conferred by the Suez Canal on English trade have been very great; the cost of transshipping goods at Alexandria and Suez has been saved, and the duration of voyages to the East shortened. Of the ships that pass through the canal the great majority (2,662 out of 4,273 in 1907), are English.

The trade with India and the East is carried on by steamers

of the P. and O. Company and other companies and lines, such as the British India Steamship Company, the Anchor, Bibby, Ben, Ellerman's, Glen, Shire, Wilson, and Henderson lines; among the foreign lines engaged in this trade are the Compania Transatlantica, Austrian Lloyd Imperial German Mail Line (North-German Lloyd's and Hamburg-American), the Koninklijke Paketvaart Maatschappij, the Messageries Maritimes, and the Navigazione Generale Italiana; the trade with Australia and New Zealand and the South Pacific is carried on by ships of the P. and O. Company, the Shaw, Savill and Albion Company, the New Zealand Shipping Company, the Union Steamship Company of New Zealand, White Star, Orient Aberdeen and Commonwealth Government Lines, British India Steamship Company, North-German Lloyd's and Messageries Maritimes.

Trade with Africa.

The growth of the colony of the Cape of Good Hope and the extension of English possessions in South Africa led to an increased trade with England, the chief companies engaged in which are the Union-Castle and Natal Lines. The West African trade gave birth to the British and African Steam Navigation Company, the Compagnie Belge Maritime du Congo, and the Woermann Line, while the East-African trade is carried on by the British India Steamship Company, Messageries Maritimes, Natal and German East-Africa Lines.



Pacific Trade.

The steamers for the trans-Pacific trade are those of the following lines :—Canadian Pacific Railway (Vancouver and Hong Kong), Pacific Mail Steamship Company (San Francisco to Hong Kong), Nippon Yusen Kaisha (Hong Kong to Seattle), and Toyo Kisen Kaisha (Hong Kong to San Francisco) ; for the Pacific coast trade of North and Central America, the Pacific Mail Steamship Company (San Francisco and Panama), the Pacific Steam Navigation Company, the Compañía, Sud-Americana de Vapores (Panama and the ports of South America), and the Kosmos Company (Hamburg and the West Coast of America).

Home and European Trade.

Besides the many steamers engaged in the coast trade between different ports of England, Scotland and Ireland, large numbers of steam-ships are constantly engaged in the Channel and North Sea trade ; of these, those that work in connection with English and continental railways are the ships of the Great Eastern Railway Company (Harwich to the Hook of Holland, and Antwerp), Great Central Railway Company (Grimsby to Hamburg, Rotterdam, Antwerp, and Esbjerg), Zeeland Steamship Company (Queenborough to Flushing), Great Western Railway Company (Weymouth to Guernsey and Jersey), London, Brighton and South Coast Railway (Newhaven to Dieppe and Caen), the South Eastern and Chatham Railway (Dover to Calais, Folkestone to Boulogne), Belgian State Railways (Dover to Ostend), South Western Railway (Southampton to the Channel Islands, Havre, St. Malo and Cherbourg). There are a very large number of other lines trading with Europe and the Mediterranean.

Screw Steamers.

The early steamers were paddle-boats, but about 1836 the screw-propeller was first put to practical use owing to the efforts of John Ericson, Francis Pettit Smith, and Bennet Woodcroft. The first screw steamer used for commercial purposes was the *Robert F. Stockton* (afterwards called the *New Jersey*), built of iron by Messrs. Laird, and launched in 1838—she crossed the Atlantic in 1839, and was used as a river steam-tug in America. The first screw-steamer in the Royal Navy was the *Rattler*, built in 1843. The first screw-steamer for the Atlantic trade was the *Great Britain*, which in 1845 sailed on her first voyage from Liverpool to New York. Most of the largest and fastest steamers are now fitted with screws.

Iron and Steel Ships.

Copper-sheathed ships and iron river and canal barges had been introduced in the 18th century, but for the framework of ships to the beginning of the 19th century wood was the chief material used. The first iron steam-ship was the *Aaron Manby* built in 1821. About 1824 Mr. William Laird established his celebrated iron-works at Birkenhead, and Mr. (afterwards Sir William) Fairbairn in 1835 began making iron vessels at Millwall, and iron ship-building on the Thames, the Mersey, the Clyde, the Wear, and the Tyne increased with great rapidity. The largest iron vessel ever built till recent times was the *Great Eastern*, constructed on the design of I. K. Brunel to carry 4,000 passengers. She was first floated in 1858, and made several voyages across the Atlantic, but proved a commercial failure, and was used afterwards chiefly for

laying submarine telegraph cables. In about 1860 began the construction of ships of steel, for which Barrow and Belfast have become celebrated. The *Mauretania* belonging to the Cunard Line and built in 1907, was, in its day, the largest steamship in the world (790 ft. long, 88 ft. broad, 80 ft. deep, registered tonnage 31,938 tons). The Cunarder *Mauretania* (the speed of which was 28 knots, i.e., 32 miles an hour), accomplished the passage across the Atlantic in 4 days, 10 hrs., 51 min. The *Cedric* and *Celtic* of the White Star Line, were built to carry each nearly 3,000 passengers.

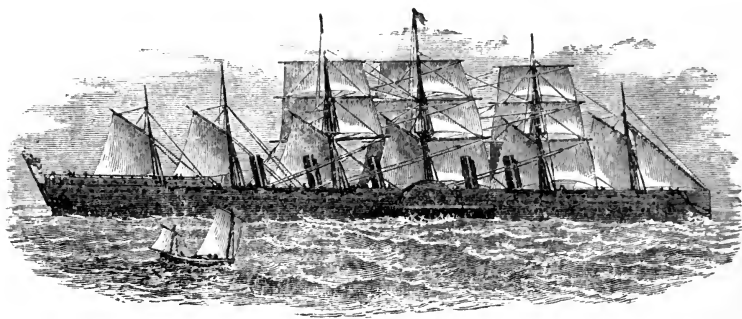


FIG. 68. "THE GREAT EASTERN."

Improvements in Ship-building. Sailing Ships.

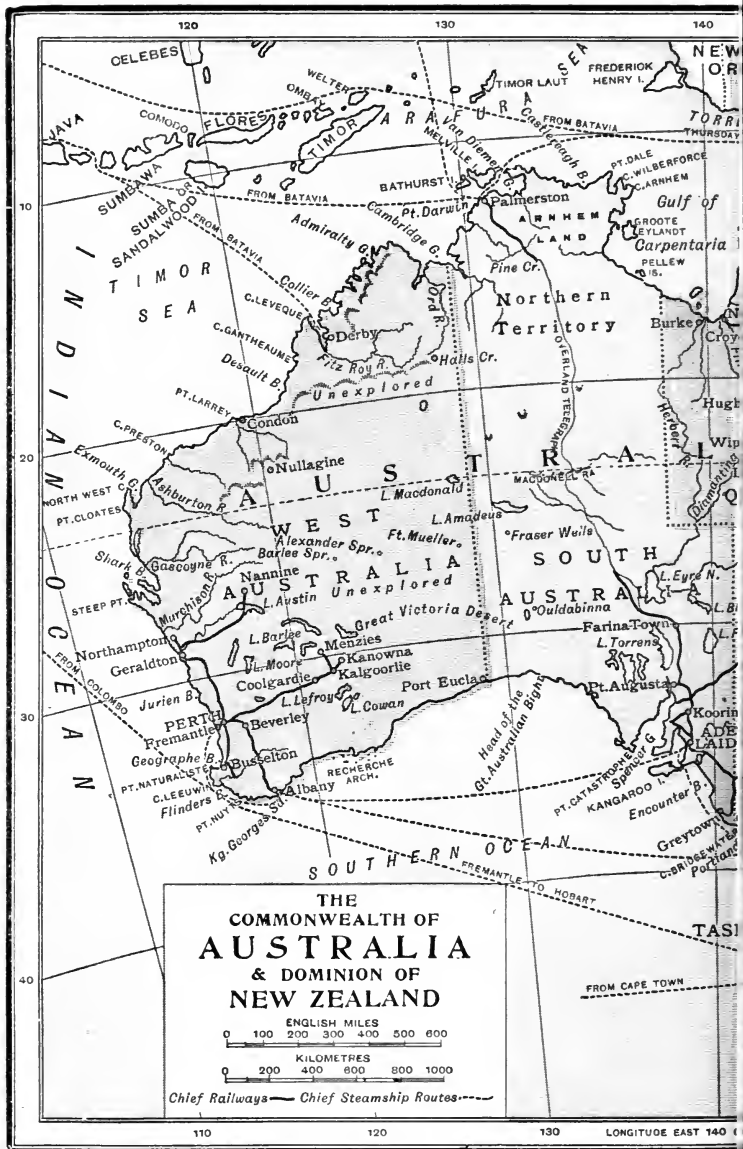
Before the time when steamships had been so far improved as to compete successfully with sailing ships, great improvements had been made in England and America in the build of sailing ships. Fast and beautiful clippers for the Transatlantic, China and Australian trades (see figure opposite page 256) were for some time preferred to steamers. On the completion of the Suez Canal the shorter route gave steamships such an advantage for the trade with India, China and

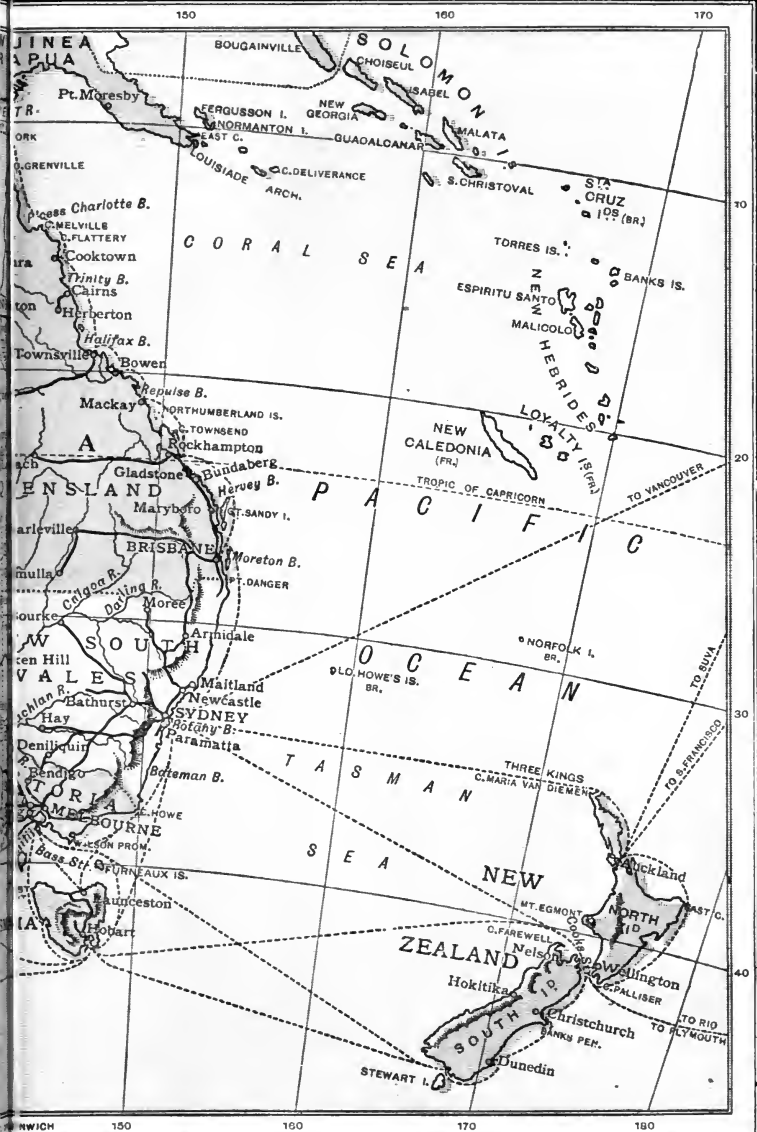
RAILWAYS OF IRELAND.

English Miles

0 10 20 30 40 50

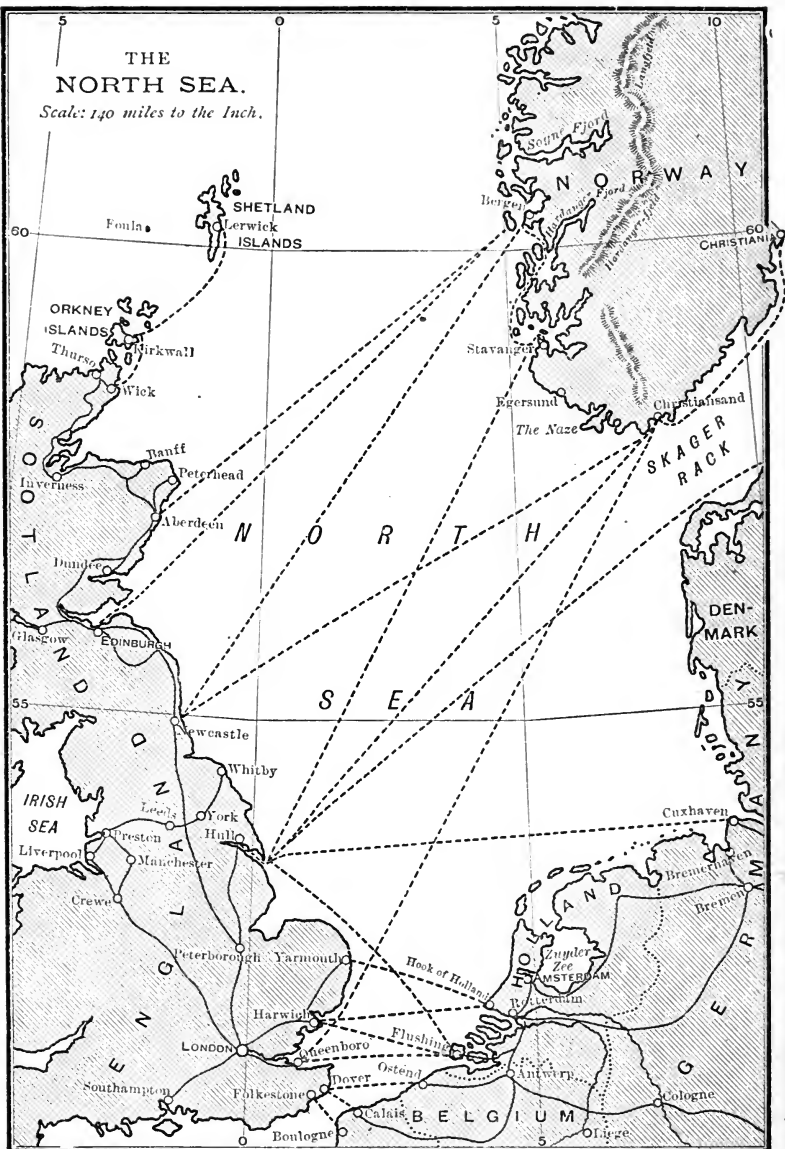






THE NORTH SEA.

Scale: 140 miles to the Inch.



Australia, that the sailing ships have gradually given way to steamers. In 1909-10 out of the 30,540 vessels of 100 tons and upwards owned by all the countries of the world, 21,909 were steamers and 8,631 sailing vessels.

Iron and Steel.

Important improvements in the manufacture of iron were made during the 19th century, such as the application of machinery to the puddling process, Neilson's invention (1828) of the hot blast instead of the cold blast in smelting, Crane's application of the hot blast to anthracite coal, and Aubertot's utilising of waste gases from the blast furnaces in raising steam and superheating the blast (1842).

Various inventions for the making of steel were introduced in the 19th century. In 1856 Bessemer invented a process, called the Bessemer or pneumatic process, for making steel from the crude metal directly as it comes from the blast furnace; this process was further improved by an invention of R. F. Mushet for hardening the metal by the introduction of ferro-manganese or spiegeleisen. Bessemer steel is chiefly used for the making of rails and of girders for bridges. It is only adapted for working iron which is tolerably free from phosphorus and sulphur. By the "basic," or Thomas-Gilchrist process, iron having a considerable amount of phosphorus can be treated, and a fair quality of steel produced, the phosphorus passing into the slag which is available for manure. Other processes invented for the conversion of iron into steel are the Heath process, by which the carburet of manganese is employed; the Whitworth process for the casting of steel under great pressure; the Siemens method, in which pig-iron is treated in an "open hearth regenerative furnace" with certain iron ores; by the Martin method the pig is melted along with scrap-iron, and by the Siemens-Martin method both scrap-iron and ore are used with pig-iron (Smiles, *Industrial Biography*, *Encyclopædia Britannica*, *sub nom.* Iron).



TEEMING STEEL FROM BESSEMER CONVERTER TO
TRANSFER LADLE AT NORTH EASTERN
STEEL WORKS

The enormous growth of the British iron and steel industries may be seen in the fact that the value of the exports of iron and steel (wrought and unwrought) increased from £2,515,918 in 1840 to over £37,000,000 in 1908; the value of the machinery exported rose from £592,793 in 1840 to over £30,000,000 in 1908; the United Kingdom also exported in 1908 ships (mostly iron and steel) to the value of over £10,000,000, machinery to the value of over £30,000,000, and hardware and cutlery to the value of over £5,000,000.

Coal-mining.

The importance of the coal industry in the United Kingdom has been enormously increased by the extension of the use of machinery and steam-ships, and of gas for lighting purposes. The invention of the safety lamp by George Stephenson and Sir Humphrey Davy, working independently of one another in 1815, enabled the workers in collieries to get coal with less danger from explosion of gas, and the use of the steam engine for raising coal enormously increased the output. The amount of the coal raised in the United Kingdom increased from 163,737,000 tons in 1883 to 230,334,469 tons in 1903. The value of the coal exports, which only reached £572,848 in 1840, in 1908 rose to £41,615,923.

Products of Coal Gas.

The residual products of coal gas manufacture, namely, coke, ammoniacal liquor and gas-tar, have all been utilised for commercial purposes, and have a considerable value. In 1856 W. H. Perkins discovered the industrial value of aniline, one of these residuals, and prepared, among other dyes, those known as mauve and magenta. Tar liquor yields by distillation a number of other products of great and increasing industrial value.

The manufacture of paraffin oil from bituminous coal was the discovery of Mr. James Young, a Glasgow chemist, who took out a patent in 1850. The invention led to the utilisation of the bituminous shales of Scotland for the manufacture of paraffin.

Matches.

Up to 1827 the chief means used for obtaining a light consisted of the tinder box containing charred linen or cotton rags, flint and steel and a piece of wood dipped in sulphur; by striking the flint and steel together a spark was obtained which ignited the tinder, from which the sulphur was set on fire. The first friction matches were known as "Congreves," after Sir William Congreve, the inventor of the Congreve rocket, and were made in 1827 by Mr. John Walker, a druggist of Stockton-on-Tees; they consisted of wooden splints coated with sulphur; the phosphorus friction match was introduced in 1833 and in 1835 the discovery of amorphous phosphorus was utilized by Lundström, a Swede, for the making of the "safety match" which was first manufactured in England by Messrs Bryant and May.

Machinery.

In almost every industry which is conducted on a large scale, mechanical appliances are now used worked by steam power or by the explosion of gas (gas-engines), or of oil, or by electricity. One of the most important instances of the application of steam-power to industry was the steam printing machine, invented by Frederick Koenig a Saxon, and set to work in London in 1811. Koenig applied his invention to the printing of newspapers, and his invention was taken up by John Walter, the proprietor of the *Times*, and was first used for the printing of that paper in 1814. The Koenig machine was improved upon by the machines of Cowper, Applegarth, and Richard Hoe, and by inventions in type-founding and electro-

typing, the final outcome of which was the Walter Press (1868-9), by which 17,000 copies of a newspaper printed on both sides can be run off in an hour.

Considerable improvements have also been made by the invention of tools and appliances for use in the manufacture of machinery. Joseph Bramah, famous for his improvements in the making of locks and water-closets, in 1795 invented his Hydraulic Press, for the raising of heavy weights. Henry Maudslay, who worked under Bramah, invented the slide-rest for use in the lathe, and machinery for punching boiler plates and cutting screws.

Joseph Clement, who like Maudslay was trained under Bramah, improved the slide-lathe, invented a planing-machine, and a machine for the cutting of screws. Joseph (afterwards Sir Joseph) Whitworth, who was trained in the workshops of Maudslay and Clement, invented "the duplex lathe and planing, drilling, slotting, shaping and other machines," a measuring machine, and a system of standard measures and gauges, and introduced a uniform system of screw threads, which came into general use. Whitworth became famous also for the manufacture of rifles and rifled guns, and for the making of heavy ordnance from ductile or Whitworth steel, which he produced (about 1870) by applying extreme pressure to the fluid metal (*Dict. of Nat. Biog., sub nom. Whitworth*).

James Nasmyth, also trained under Maudslay, invented the steam-hammer in 1837 and the pile-driver in 1843. Among other great mechanics of the 19th century are James Fox, of Derby, who also invented a planing and screw-cutting machine and became celebrated for his lace machinery; Matthew Murray, of Leeds, who improved on Trevithick's locomotive, and invented a machine for heckling and spinning flax; Richard Roberts, of Manchester, who invented an improved screw-lathe, an "oscillating and rotating gas-meter," a planing-machine, a machine for the

punching of iron plates, and the self-acting mule for the spinning of cotton; Sir William Fairbairn, who improved the machinery used in cotton mills by substituting light for heavy gearing, and introduced a machine for riveting boiler-plates by steam-power (Smiles, *Industrial Biography*). William George, Lord Armstrong (1810-1900), the founder of the celebrated Elswick works, became famous as a maker of heavy ordnance and a builder of iron ships, and invented a hydraulic crane, breech-loading cannon, and a new method of forging heavy ordnance.

The advance made in the 19th century in mechanical skill may be seen by comparing George Stephenson's No. 1 engine (opposite page 225) with a modern locomotive built for the railway company which now owns the Stockton and Darlington line (opposite page 232), or by comparing the *Comet* (see page 232) with the *Olympic* (see frontispiece).

Among the great engineering achievements of the 19th century may be mentioned the Thames Tunnel, the first tunnel under the Thames, constructed (1825-1842) by Marc Isambard Brunel, the Mersey Tunnel (1885), the Severn Tunnel (1887), the Forth Bridge (1890), the Manchester Ship Canal (1894); great advance has been made in drainage works, the best specimen of which perhaps is the system by which the whole of the drainage of London is carried down to Barking and Cross Ness, and in the construction of reservoirs, a remarkable instance of which is Vyrnwy reservoir for the supply of water to Liverpool.

Cycles and Motor-Cars.

Great improvements have been made in recent years in the making of vehicles for use on roads. From 1818 onwards various attempts were made in France and England to invent a self-driven machine on wheels for use on a road; the cycle came into common use after the invention of the safety bicycle, which was brought out by J. K. Stanley in 1885

and of the pneumatic tire by J. B. Dunlop in 1888. Light road-carriages propelled by steam, oil, or electric engines have come into common use in England since 1896, when the restrictions imposed by Acts of Parliament of 1861 and 1878 on the use of steam carriages on roads were removed. France led the way in the development of this industry, but one of the most important inventions, the petroleum spirit motor, was the work of a German, Gottlieb Daimler. Motors have been used with great success in the navigation of balloons and airships.

Scientific Discoveries.

The study of natural science made the most rapid strides during the 19th century, and led to many discoveries which have been practically applied to commercial and industrial purposes. Quite a new industry sprang up on the Tyne and in South Lancashire in the manufacture of chemicals, such as carbonate of sodium, sulphuric acid, hydrochloric acid, bleaching powder and alkali.

Electricity.

Electricity, the study of which made the most wonderful advances during the 19th century, has been practically applied to the plating and gilding of metals, to the conveyance of messages by telegraph and telephones, and to lighting and traction.

Electro-plating.

The discovery of various processes of electro-metallurgy, by which a deposit of one metal may be made upon another by means of electricity, led to the introduction of the industry of electro-plating and electro-gilding by George Richard Elkington and Henry Richard Elkington, and John Wright. Up to 1840 plated silver goods had been made only by rolling or soldering thin sheets of silver upon copper. The two Elkingtons took out a patent in 1838 for the application of an electric current to electro-plating, and in 1840 Wright discovered the best liquid for electro-plating, namely solutions

of the cyanides of gold and silver in cyanide of potassium, which the Elkingtons patented and used in their works in Birmingham for the making of electro-plated and electro-gilded goods.

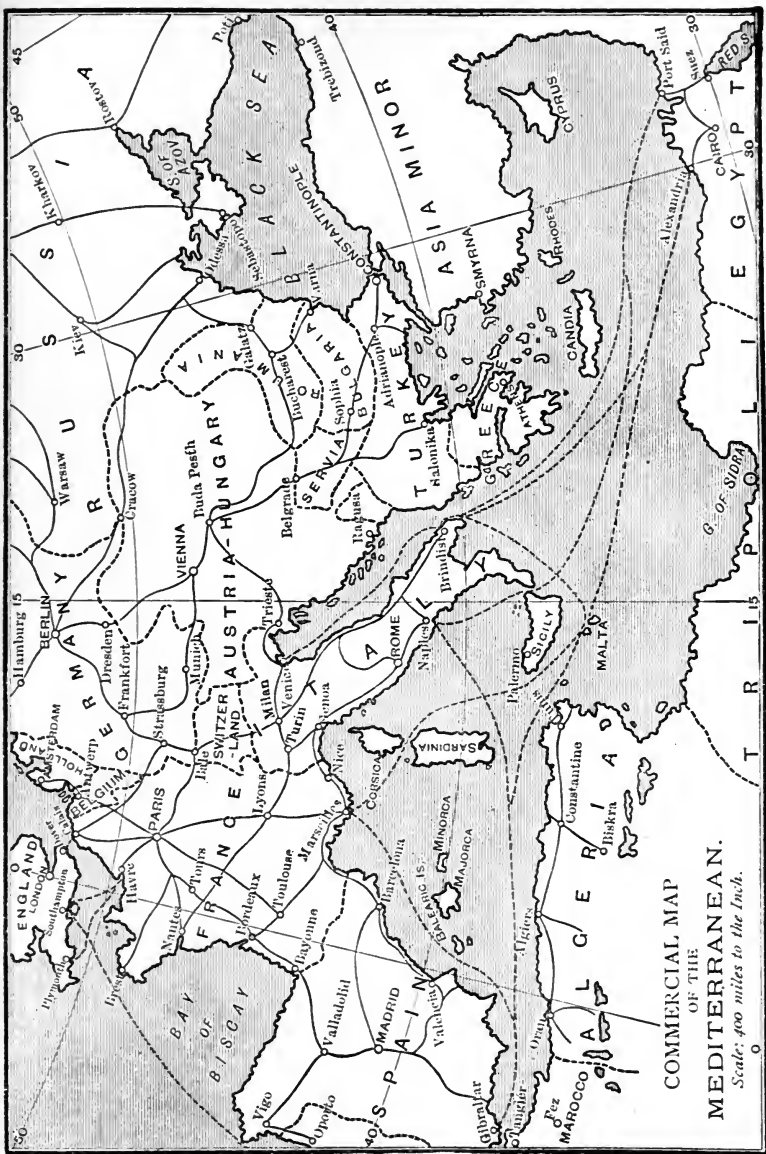
Electric Telegraph.

Experiments had been made for conveying signals or messages by means of an electric current from 1729 onwards. Practical success was not obtained till 1837, when Morse in America, and Wheatstone and Cooke in England invented a fine needle telegraph for the transmission of messages, and the invention was put to practical use by the construction of a telegraph line for use on the Blackwall Railway. In 1841 Bain invented an electric telegraph with a printing apparatus for recording the results; and in 1843 Cooke introduced the plan of suspending the wire on posts. In 1846 the Electric Telegraph Company was formed, and after 1868 the Post Office acquired all the telegraphs in the United Kingdom and the legal monopoly of conveying telegraphic messages for hire. Submarine telegraph cables were laid from Gosport to Portsmouth, then from Dublin to Holyhead, and in 1851 from Dover to Calais. The first Atlantic telegraph cable was laid in 1865-6, and now most of the countries of the world are in telegraphic communication with one another. In 1898 the Marconi process was introduced, by which telegraphic communication at sea can be maintained without the use of wires.

About the year 1877 the telephone was invented, and has since been considerably improved, and has come into general use for business purposes. By this means a conversation can be carried on between a person in one place and another person at a distance of several hundreds of miles.

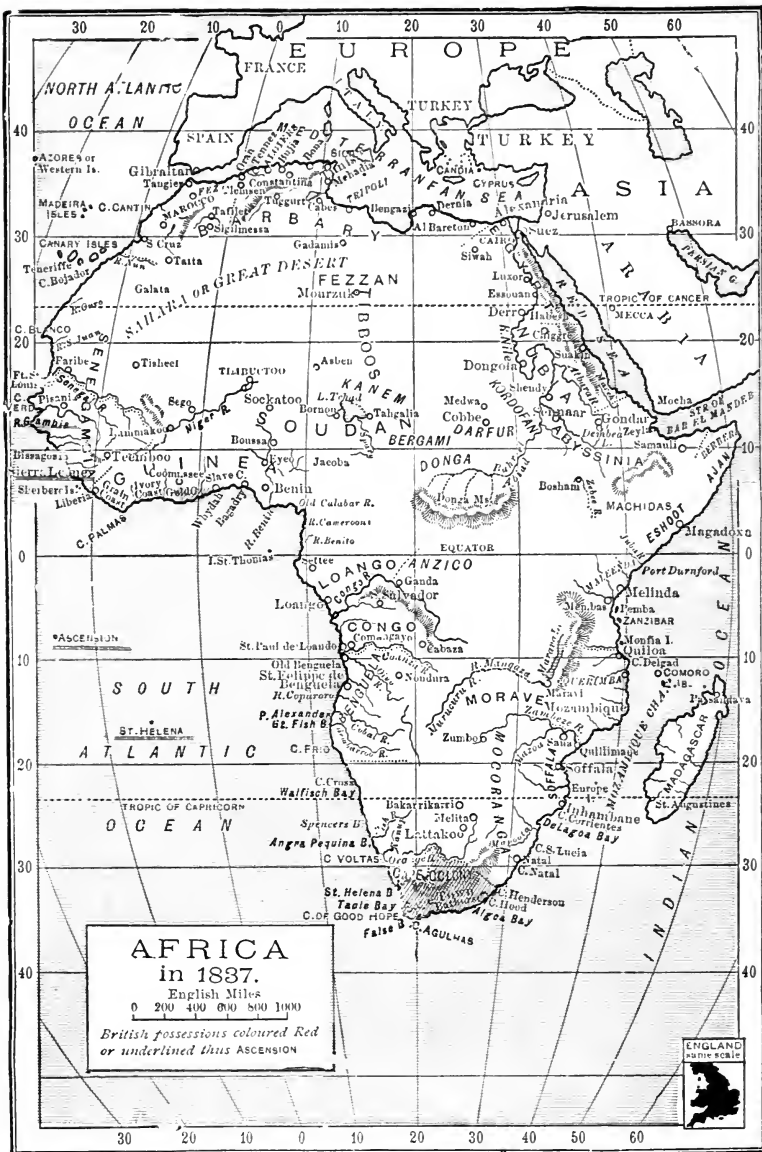
Electric Lighting.

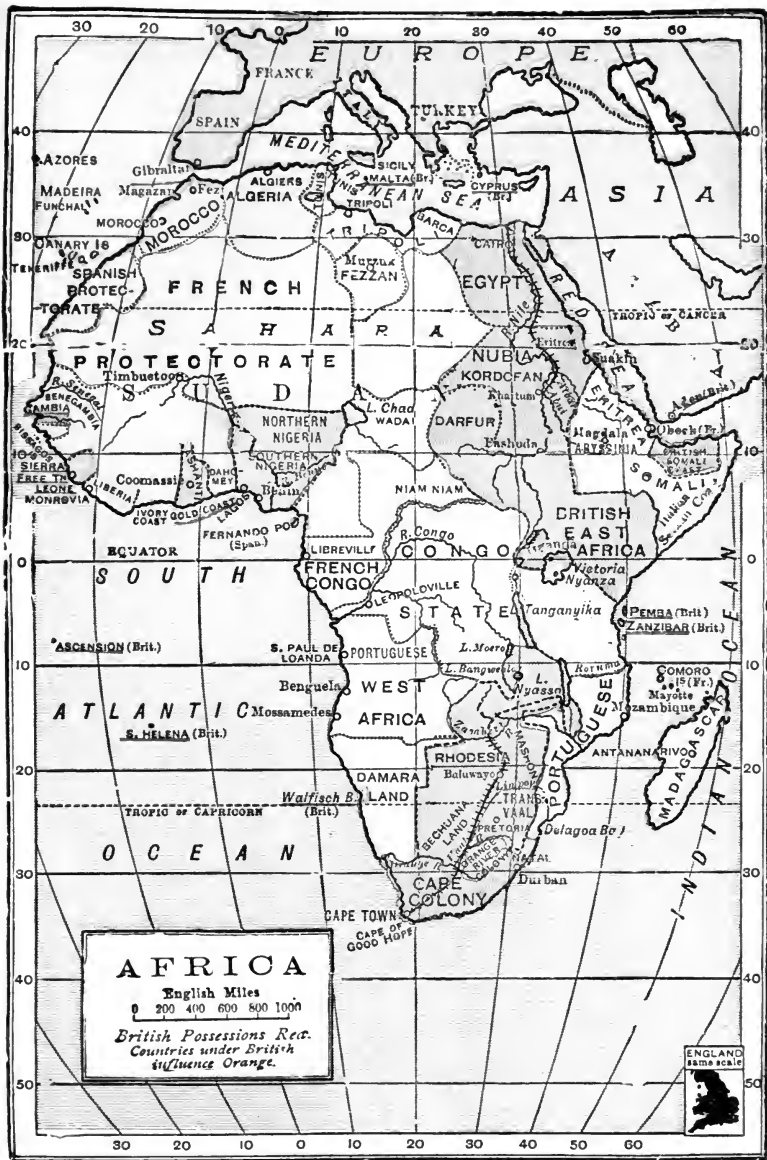
Sir Humphrey Davy, in 1813, obtained a dazzling light by transmitting a powerful electric current between two sticks of carbon; Greener and Staite took out a patent in 1846 for a

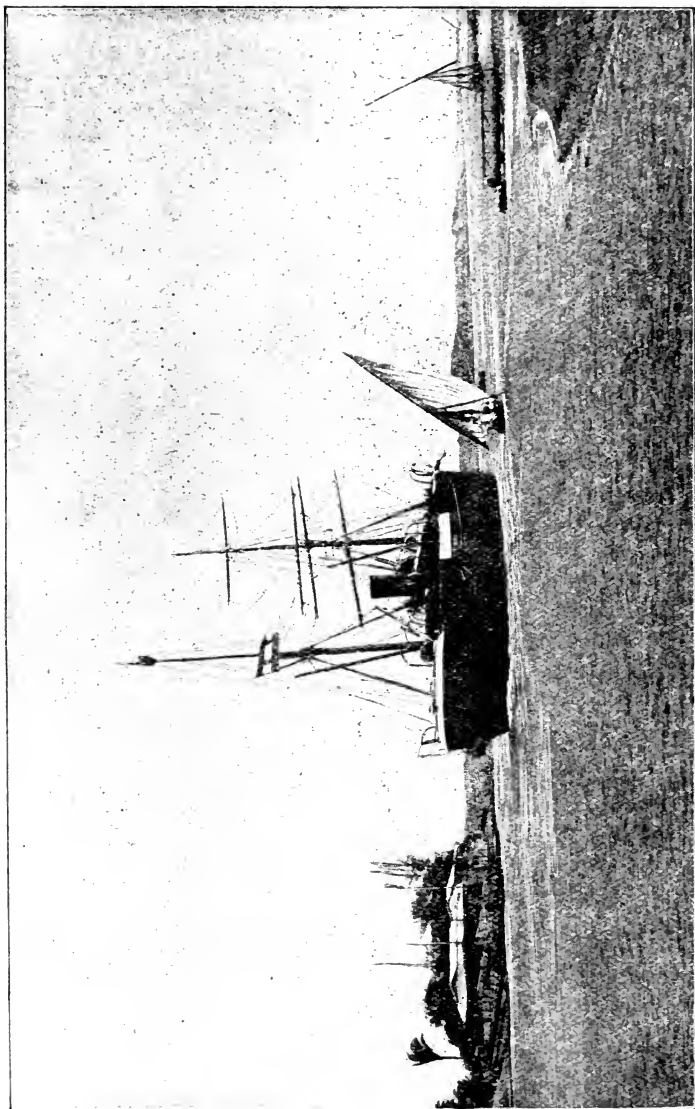


COMMERCIAL MAP
OF THE
MEDITERRANEAN.

Scale: 400 miles to the Inch.







SUEZ CANAL.

process by which small lumps of carbon, inclosed in air-tight vessels, were rendered luminous by electric currents. In 1846 the electric light was used on the operatic stage in Paris, in 1858 at the South Foreland lighthouse, and in 1862 at Dungeness; and from the time of the International Exhibition of Electrical Appliances at Paris, in 1881, it began to come into general use, and the inventors of the Brush, Crompton, Lewis, Jablochkoff, Jamin and Werdermann arc-lights, and of the Swan, Edison, Maxim and Lane-Fox incandescent lamps introduced such improvements that it has now become generally used for the lighting of houses, shops, and large public buildings (by the incandescent system), and of railway stations, docks, streets, etc. (by the arc-system)

Electric Traction.

Electricity as a motive-power has been applied in quite recent times to the drawing of tram-cars, railway trains and other vehicles.

Photography.

Another result of the great advances in science is to be seen in the progress of the art of photography, which took its rise about the beginning of the 19th century; Wedgwood in 1802 published, with the assistance of Sir Humphrey Davy, an account of a method of making profiles by the agency of light upon nitrate of silver; the photographic process was probably invented by a Frenchman, Nicéphore de Niepce, about 1814-1827; he communicated the process to Daguerre, who invented the Daguerrotype picture in 1839; in the same year in England the Fox-Talbot or calotype process was invented; great improvements have been made by the invention of the collodion process (1850), of dry plates, the collodion emulsion process (1864), and the gelatin emulsion process (1881); by means of these and similar improvements the period of exposure necessary to produce a picture has been lessened from half-an-hour to a fraction of a second.

Population.

The population of England and Scotland increased at a rapid rate during the 19th century, while the population of Ireland rapidly declined. The population rose in England and Wales from a little under nine millions in 1801 to $32\frac{1}{2}$ millions in 1901, and in Scotland from a little over $1\frac{1}{2}$ millions in 1801 to nearly $4\frac{3}{4}$ millions in 1901, while in Ireland the population declined from a little over eight millions in 1841 to a little under $4\frac{1}{2}$ millions in 1901. The tendency in England has been for the population to crowd into the towns and manufacturing districts, especially in the north of England, where towns such as Barrow and Middlesbrough have sprung up, which are the growth of the 19th century; in many of the purely rural districts of England and Wales the population has considerably declined.

Food Supplies from Abroad.

Before the close of the 18th century the population had grown to such an extent that England could not produce sufficient corn for her own needs. Since then we have become more and more dependent on supplies of food from abroad. The value of food-stuffs imported into the United Kingdom in 1908 was:—of corn, meal and flour £72,733,334, meat (including animals for food) £49,448,334, butter £24,080,912, eggs £7,183,112, cheese £6,684,203, lard £4,407,410, and condensed milk £1,544,194.

The importation of vast amounts of fresh meat from distant countries was made possible by the introduction of refrigerating machinery, which was first employed on the steam-ship *Strathleven*, trading with Australia in 1878, and has since been considerably improved.

The enormous increase in the importation of articles of food grown abroad caused, for a time, a great fall in the price of agricultural produce and considerable

depression in agriculture in England, in spite of many improvements in agricultural implements and the application of chemical discoveries to the cultivation of the soil and the introduction of improved manures. The great increase of population in Great Britain also led to a considerable increase in emigration, and to the rapid growth of many of the English colonies.

English Colonies. Canada.

The 19th century saw a great increase in the prosperity and an extension in the boundaries of Canada. The navigation of the St. Lawrence was improved, so that ocean steamers could reach Montreal; railways, telegraphs, and ship canals were built; regular lines of steamships established with Europe, and a system instituted for the encouragement and organising of immigration. In 1867 all the British provinces in North America except Newfoundland were united, and formed the Dominion of Canada, to which have since been added the wheat-growing province of Manitoba in 1870, Vancouver's Island and British Columbia in 1871, and the territories which formerly belonged to the Hudson's Bay Company. The Dominion now extends from the Atlantic to the Pacific Ocean, and its whole length is traversed by the Canadian Pacific Railway, in connection with which a line of steamers runs between Vancouver's Island and Japan and China.

Products of Canada.

The chief product of Canada is its yellow pine, the wood of which is cut, floated down the river to the lakes, and thence conveyed to Montreal and Quebec, and thence distributed all over the world. Canada also exports great quantities of corn, flour, beef, pork, cheese and tinned salmon. It has enormous supplies of mineral oil. Nova Scotia and New Brunswick have abundance of coal. Gold is found in British Columbia,

and the rich gold-field of Klondyke has lately been opened up on the border of Alaska. Canada is rich in other metals, iron, copper and lead. The vast prairies to the west and north-west grow enormous crops of wheat or feed vast herds of cattle. British Columbia affords an almost inexhaustible supply of timber and fish. With all these advantages Canada has become one of the leading mercantile countries in the world, and with its enormous territories, which only need settlers to open them up, has almost boundless capacities for commercial development. The value of the exports from Canada increased from over seventeen million pounds in 1879 to over fifty-three millions in 1908, and of the imports from over twenty millions in 1879 to over sixty-three millions in 1908. The bulk of her trade is with Great Britain and the United States.

The West Indies.

The commercial decline of the West Indies was accelerated by the abolition of slavery in 1834, the opening of English markets to the competition of foreign sugar by the abolition of the protective duties on foreign sugar in 1846, and the competition of beet-root sugar made on the European continent and fostered by bounties. The Brussels International Sugar Convention of 1903, which had for its chief purpose the abolition of sugar bounties effected some improvement in the sugar-cane industry of the West Indies. An attempt was subsequently made with some success to revive the declining prosperity of Jamaica by opening up a trade in bananas and oranges with Bristol by the Imperial Direct West India Mail Service. In 1907 the value of the bananas exported from Jamaica was £1,038,721; the total exports were in value £2,376,292, and the imports £2,914,013. Trinidad is the most flourishing of the English West Indian colonies; its exports in 1907 were £3,907,503, and its imports £3,374,824.

Australia.

The growth of Australia was still more marvellous than that of Canada. The first settlement in Australia was only made in 1787, and before the end of the 19th century the greater part of the habitable portion was colonised from England, and became rich and prosperous. The prosperity of the oldest colony, New South Wales (founded 1787), was based on wool, the successful exportation of which to England led to an increase in the settled area of the colony, and to a great flow of immigrants from England. In 1822 the Swan River Colony, now called Western Australia, was founded, in 1836 South Australia, in 1851 Victoria, and in 1859 Queensland. In 1851 the discovery of gold near Bathurst, in New South Wales, and of the enormously rich gold-field of Ballarat in Victoria, led to a vast influx of settlers from Europe. Representative government was established in New South Wales in 1836 and subsequently in all the other colonies, and in 1900 all the Australian colonies were united under one Federal Government on a plan similar to that of the Dominion of Canada.

Trade of Australia.

The exports from New South Wales, the most prosperous of the Australian Colonies, amounted in 1907 to £48,774,978 in value, and the imports to £39,456,195; the chief exports were gold, wool, silver, meat, hides and skins, copper, lead, tallow and butter; the chief imports were cotton and woollen goods, machinery and hardware. The bulk of the trade, as in all the Australian colonies, is with the United Kingdom and the British possessions. The value of the exports from Victoria, the next colony in importance, amounted in 1907 to £28,735,004, and the imports to £28,198,257; the chief exports were gold, wool, live stock, grain and flour, butter, hides and skins; the chief imports were cotton and woollen goods, wearing apparel, sugar, coal, tea and iron. The exports from

South Australia in 1907 were £13,898,585 and the imports £12,120,052; the chief exports are wool, wheat, flour and copper; the chief imports are textile goods, sugar, alcohol, tea, coal, hardware and machinery. The exports from Queensland in 1907 were £14,684,019, the imports £9,429,691; the chief exports are gold, silver, copper, tin, coal, meat, hides, skins, tallow, wool and sugar; the chief imports are textile goods, alcohol, tea, flour, hardware and machinery. The exports from West Australia in 1907 were £9,904,860 and its imports £6,522,988; gold is the chief of its exports, the next most important are timber (especially the Jarrah wood, used for paving streets, and for making railway sleepers and piles for bridges and harbours), wool, pearls and shells, hides and skins, copper, tin and silver, sandalwood, bark for tanning, and wheat and flour. The chief imports are provisions, sugar, tea, spirits, beer, soap, machinery, ironmongery and clothing. The exports from Tasmania in 1907 were £4,068,459, the imports £3,248,193. The chief exports are wool, gold, silver, tin, timber, fruit and jam, hops, grain, hides and skins, and bark.

New Zealand.

The islands that form New Zealand were first settled in 1814, but were not regularly colonized till 1839. At first New Zealand formed a part of New South Wales, but became a separate colony in 1841. Constitutional government was established in 1852. The value of the exports from New Zealand in 1907 was £20,068,957, and of the imports £17,302,861; the chief exports were wool (£7,657,278,) frozen meat, butter and cheese, gold, hides, skins and leather; the chief imports were clothing and materials for clothing, iron and steel goods, machinery, sugar, tea, alcohol, books and stationery; the trade is chiefly with England, Australia, the United States and China. By the Pacific Cable, which was opened in December, 1902, New

Zealand was brought into direct telegraphic communication with Canada.

South Africa.

The history of Cape Colony, which was settled by the Dutch in the middle of the 17th century, and ceded to England in 1815, was for some time a troubled one, owing to difficulties with the intractable Dutch population, and to wars with the Kaffirs, a warlike and powerful race of natives. The area of the colony has been from time to time considerably enlarged by new settlements, and in 1872 constitutional government was established. The abolition of slavery in 1834 and the protection afforded by the English Government to the native population led to difficulties with the Dutch settlers, many of whom "trekked" to the north and settled in the Orange River State (1836), Natal (1837), and the Transvaal (1840). Natal was declared British territory in 1843, and became a separate colony in 1856. The Orange River State, after being declared British territory in 1848, was allowed to become independent in 1854; the independence of the Transvaal was recognised in 1852, it was annexed to England in 1877, revolted in 1880, and was recognised as independent in 1881; war having broken out in 1899 between Great Britain and the Transvaal and the Orange River State, the last two states were annexed to Great Britain in 1900. Constitutional government was established in 1906 and in 1909 an Act was passed providing for the Union of Cape Colony, Natal, the Transvaal and the Orange River Colony on the same plan as Australia. To the north of the Transvaal the vast territory of Rhodesia, of about 750,000 square miles, has been added to the British Empire by the operations of the British South African Company, which was chartered in 1889. South Africa is enormously rich in minerals; diamonds were found in 1867 in the district round the modern town of Kimberley, which became British territory in 1871; gold is found in the Transvaal, Rhodesia and Cape Colony, and copper in Cape Colony.

The value of the exports from Cape Colony in 1907 was £45,514,483, and of the imports £18,025,049; the chief exports are gold, diamonds, ostrich feathers, mohair, hides, and copper ore; the chief imports are textile fabrics, clothes, iron, steel, machinery, sugar, coffee, alcohol, timber and explosives.

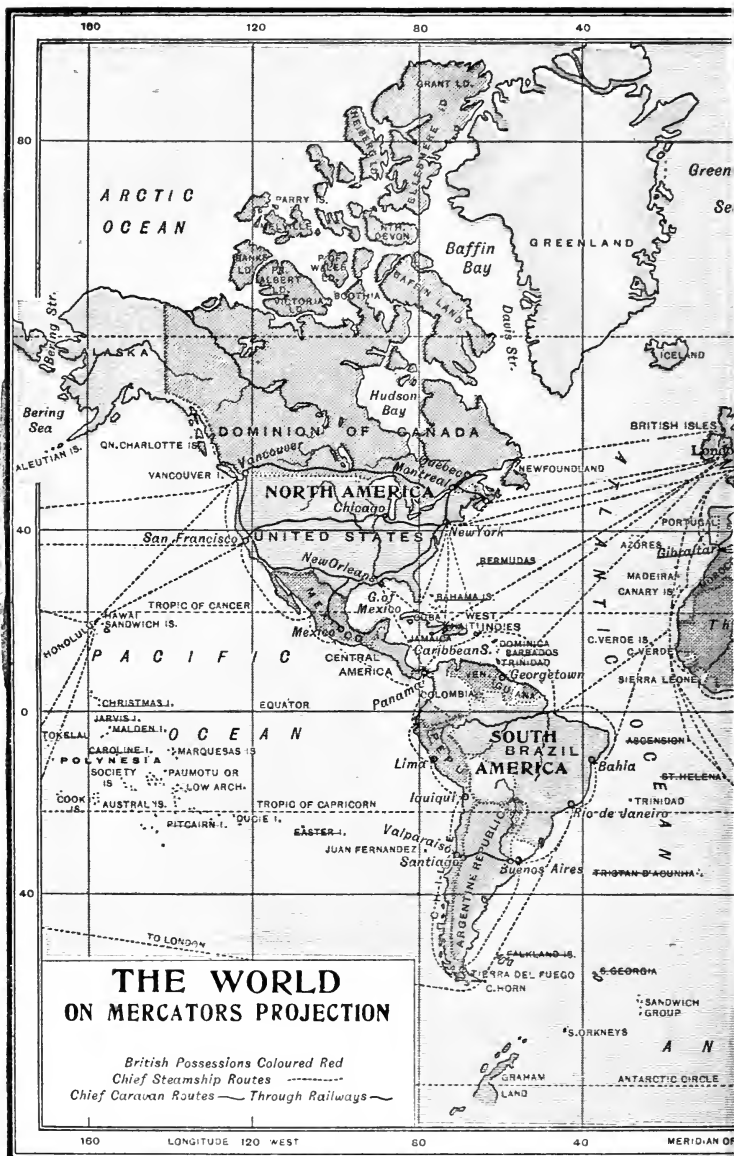
The other British possessions in Africa include the Gold Coast, Lagos, Nigeria, British Central Africa, British East Africa, Uganda and Zanzibar.

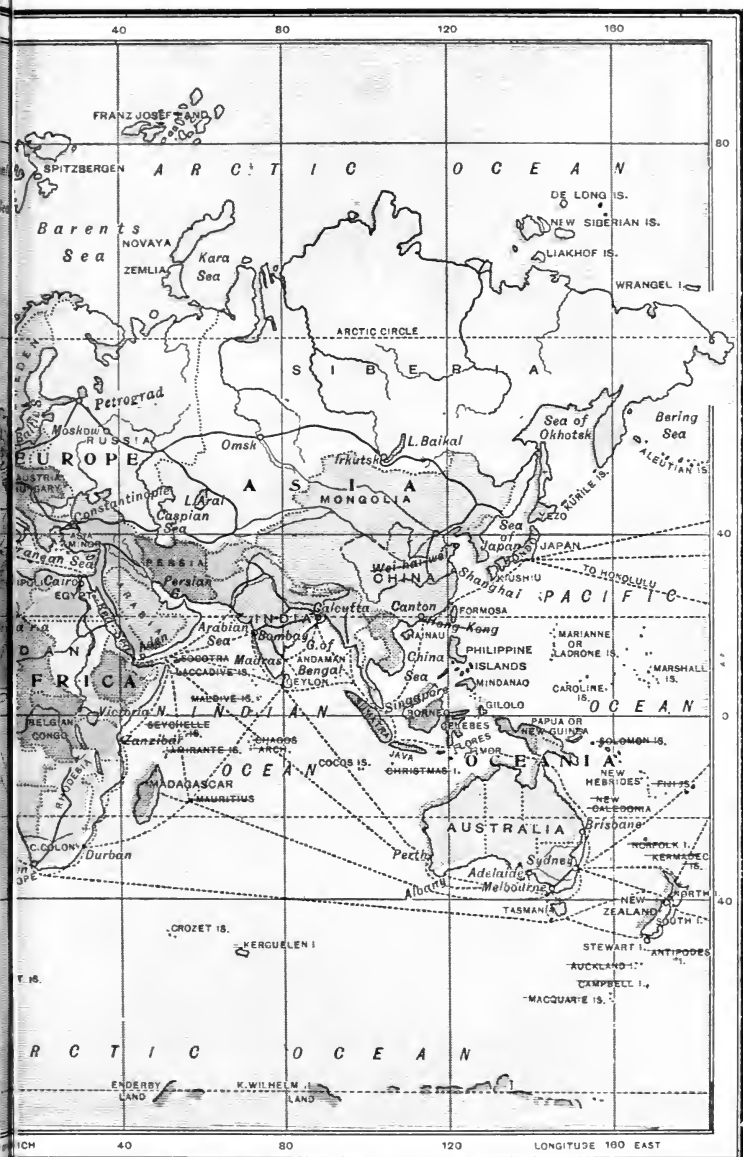
India.

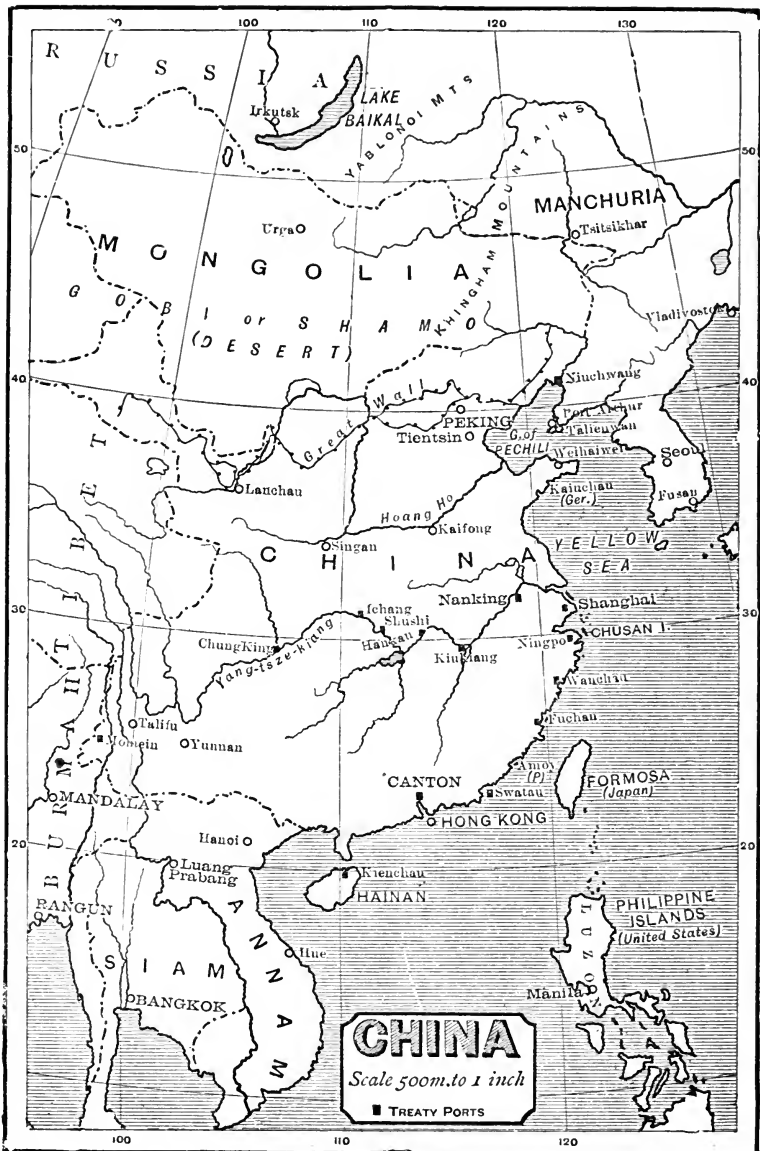
After the suppression of the Indian Mutiny the government of India was transferred in 1858 from the East India Company to the Crown, and the Company ceased to exist. Under the direct government of the Crown India has increased in prosperity and wealth, a system of railways has been established, works of irrigation have been improved, and docks and harbours built; the total sea-borne trade in the years 1908-9 was of the value of over £207,000,000. The chief exports (£106,287,000 in value in 1908-9) are jute, raw cotton, rice, seeds, wheat, cotton yarn and cloth, opium, hides, tea and wool; the chief imports (£101,015,000 in value in 1908-9) are cotton goods, metals, sugar, railway plant, machinery and woollen goods. Of the sea-borne trade more than one-half is with the United Kingdom.

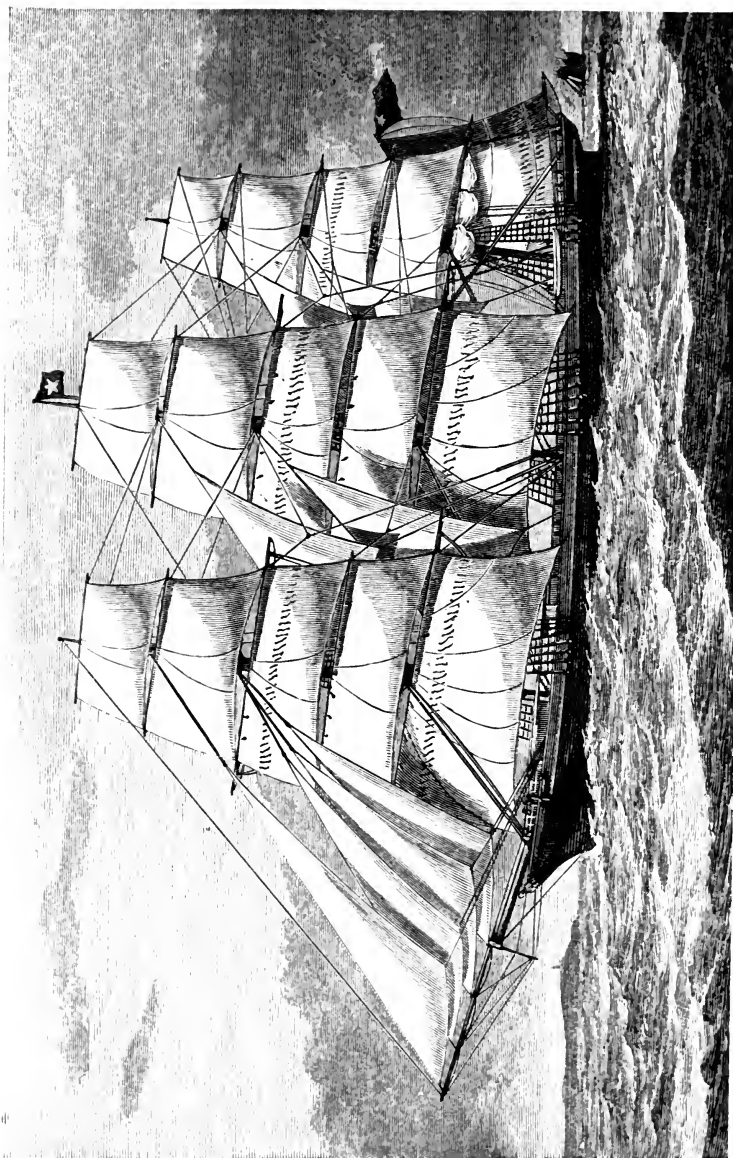
The other British possessions in and near Asia now include Ceylon (ceded in 1815), the Straits Settlements, *i.e.* Singapore (occupied in 1819 and ceded in 1824), Penang (ceded in 1786), the Wellesley Province (ceded in 1798), and the dependent Federated Malay States; Hong Kong (ceded by China in 1842), Wei-Hai-Wei, Labuan, British North Borneo, Sarawak and Aden. Ceylon, Hong Kong and the Straits Settlements are the most prosperous of these possessions, the Straits Settlements being the centre of a thriving trade, and Hong Kong the busiest seaport in the world after London.





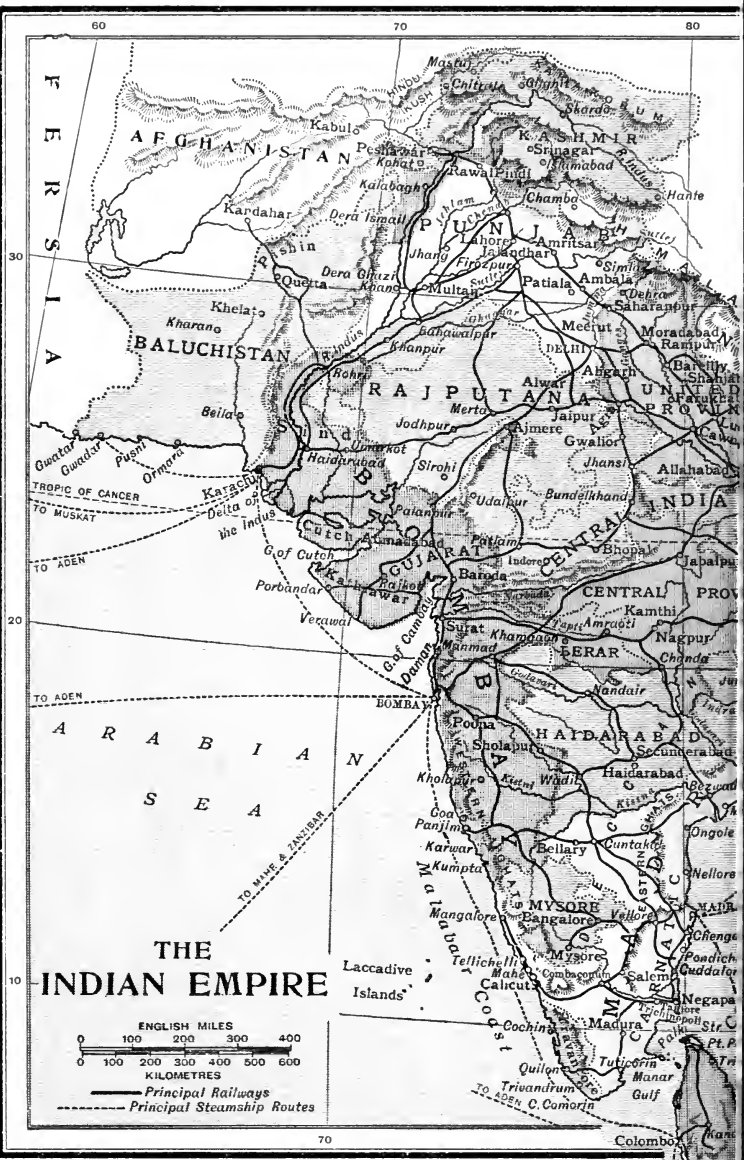


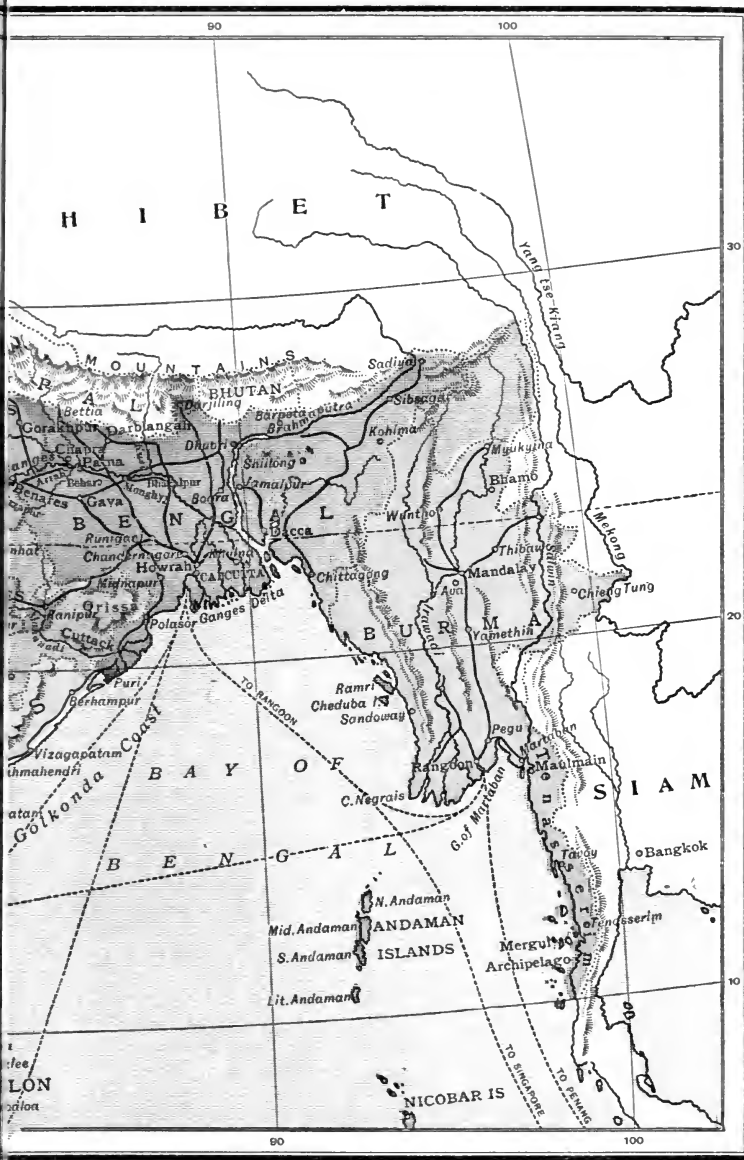


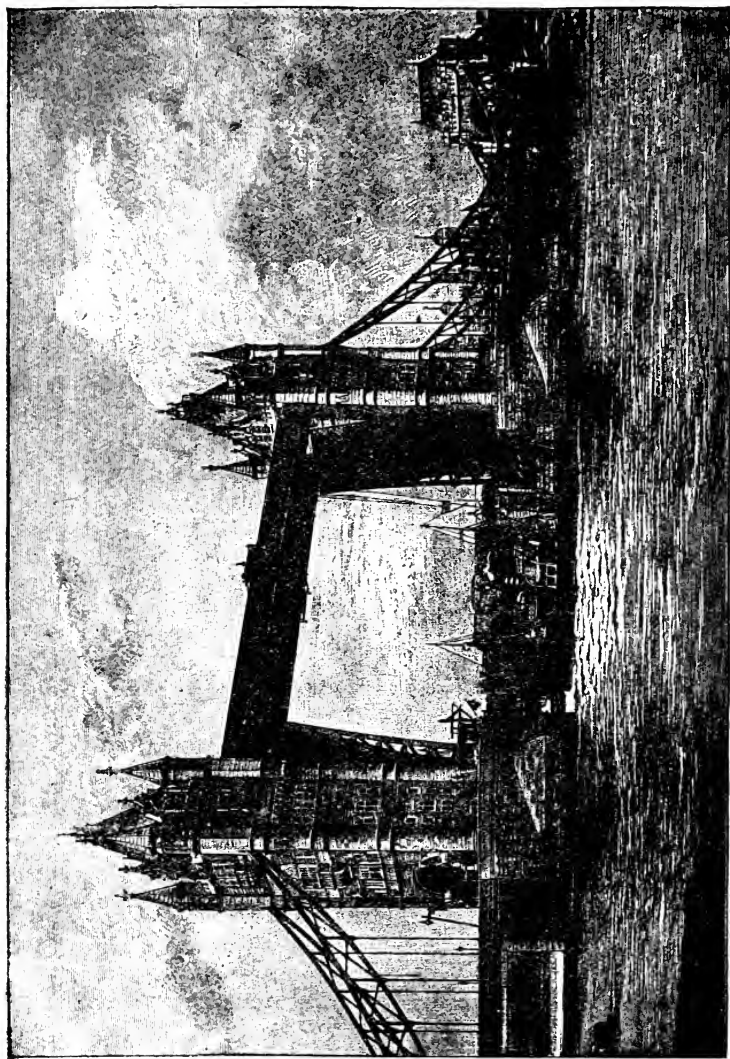


THE "THERMOPYLÆ."

Fast Clipper built at Aberdeen in 1868, used for the Australian and China trade, made the fastest passage (60 days) between London and Melbourne ever made by a sailing-ship.







TOWER BRIDGE.

Free Trade.

After the time of Adam Smith the science of political economy was still further developed by many distinguished writers, the most celebrated of whom in England are Malthus (author of *An Essay on the Principles of Population*, 1798), Ricardo (author of *Principles of Political Economy and Taxation*, 1817), James Mill, McCulloch, John Stuart Mill (author of *Principles of Political Economy*, 1848), J. E. Cairnes, Bagehot, Cliffe Leslie, and Jevons. The general trend of the writers on political economy and the tendency of the political and commercial world since 1820 in England were till quite lately in favour of a free trade policy. Huskisson, who became President of the Board of Trade in 1823, passed a series of measures having a free trade tendency. The Navigation Acts were modified in 1824 and 1829 so that the shipping of any foreign state in the ports of the United Kingdom could be placed on a footing of equality with English shipping provided such state afforded reciprocal privileges in its ports to British ships. A number of reciprocity treaties followed with different states between 1824 and 1842. The duties on imported cotton, woollen, linen, silk, leather, earthenware, iron manufactured goods, olive oil, sugar, copper, tin, lead, wool and other raw materials, and on salt, manufactured glass, British spirits, hides and skins, and French wines were reduced. Poulett Thomson (Lord Sydenham), who was Vice-president of the Board of Trade in 1830, carried out many improvements in the customs duties and did much for the advancement of free trade and financial reform. By Lord Althorpe's budget of 1833 the taxes on coal, tallow candles, printed calico, glass and tobacco were reduced, the duties on a large amount of articles which produced but a trifling revenue were abolished, and by the equalising of the duties on French wines with those on Portuguese wines, the policy of the Methuen treaty (page 179) was definitely abandoned.

Repeal of the Corn Laws and Navigation Acts.

The fall of the price in wheat, which followed on the opening of the continental ports after the peace of 1815, led to an outcry on the part of the farmers, to meet which an Act was passed in the teeth of some opposition to prohibit the importation of wheat when the price was over 80s. a quarter. In 1822 this Act was amended by allowing the importation of foreign wheat when the price was 70s., with a sliding scale of duty which was lowered as the price of wheat rose. Further changes were introduced in 1828 and 1842. In 1838 an agitation in favour of the repeal of the Corn Laws was begun by the formation of the Anti-Corn Law League. In 1846 Sir Robert Peel carried a measure for the total repeal of all the corn duties except a 1s. duty, which was abolished later on in 1869. In 1848 the differential sugar duties, which had been introduced for the purpose of favouring the sugar trade of the British West Indies, and had from time to time been successively reduced, were abolished altogether. In 1842 Sir Robert Peel carried a measure for the revision of the customs tariff, by which he reduced considerably all duties on the raw materials of manufacture, all duties on goods wholly or partially manufactured, and all export duties; he re-introduced the income tax, which had been discontinued since 1812 and remained in force till 1852. In 1843 he abolished the prohibition on the exportation of machinery, and in 1844 the duty on wool; he also reduced the duties on currants, coffee, and marine insurance. In 1845 he abolished the duty on cotton, wool and glass, and 430 articles which produced but a slight revenue, and still further reduced the timber duties; in 1846 he reduced the duties on textile goods, stained paper, metal, and leather manufactured goods, earthenware, carriages, butter, cheese, and hops. In 1849 the last relic of the mercantile system in our legislation disappeared with the repeal of the Navigation Acts, by Mr. Henry Labouchere (afterwards Lord Taunton); the coasting trade was restricted to British vessels till 1853. The usury

laws, prohibiting the charging of interest above five per cent., were repealed in 1854. Mr. W. E. Gladstone, Chancellor of the Exchequer in 1853, abolished the excise duty on soap, reduced the duty on tea and many articles of food and on receipts, put an end to all differential duties, and duties on 123 articles which only produced a small amount of revenue; he re-imposed the income tax, and imposed a succession duty. In 1855 the Newspaper duty, in 1861 the paper duty, and in 1880 the malt tax were repealed. In 1910, the only import duties were on playing-cards, cocoa, coffee, chicory, dried fruits, sugar, tea, tobacco, wine, beer, spirits, liqueurs, cordials and other articles manufactured of or containing spirits.

In recent years signs of a reaction against the policy of free trade have appeared, and some politicians have advocated a policy of preferential duties in favour of goods from the English colonies and retaliatory duties on imports from those countries which impose a heavy tariff on our exports.

Progress, Speculation, and Commercial Crises.

The years immediately following the peace of 1815 were a time of depression of trade, the revival of which in 1820-2 led to an increase in speculation. The independence of the Central and South American States that revolted from Spain was recognised in 1823 by England, and exaggerated estimates were formed of the richness of their mines. English capital was largely invested in these countries, and a sudden rise in value of the shares of the Mexican and South American mining companies led to a considerable amount of gambling on the Stock Exchange. Foreign loans also became "the rage," and large sums were invested in Portuguese, Greek, Mexican, Brazilian, Peruvian and Buenos Ayres securities. The remitting of large sums for foreign loans (£48,000,000 between 1821 and 1825) and foreign mining led to a commercial crisis, and a

number of failures of companies and commercial houses in 1825. In 1835 and 1836 there was a fresh outburst of speculation, especially in the shares of the new joint-stock banking companies which were formed after 1827, when an Act was passed permitting the formation of joint-stock banking companies outside London; a clause in the Bank Charter Act of 1833 having opened the door for the establishment of such companies in London, the London and Westminster Bank began business in 1834 and opened a number of branches in different parts of London; the London Joint-Stock Bank followed in 1836, and others shortly after. In 1837 a great crash among the American banks produced another commercial crisis, and a great number of failures in England. In 1844 Sir Robert Peel passed the Bank Charter Act, which regulates the issue of notes of the Bank of England. By this Act the Bank was forbidden to issue upon securities notes to a larger amount than £14,000,000; above that sum notes must correspond to the amount of bullion held by the Bank. In 1847 another commercial crisis followed, caused to a great extent by over-speculation in railway shares and in the iron trade, by a shortness in the American cotton crop, and by the failure in 1846 of the Irish potato crop; the Government authorised the Bank of England to extend the issue of notes beyond the prescribed limit, and the crisis soon came to an end. The outbreak in 1854 of the Crimean War between England and Russia produced for a time in England a sudden rise in the prices of Russian products such as grain, tallow, hemp, flax, wool, and timber, but the rise was only temporary, as Russian produce came into this country through Prussia and Holland, and large supplies of grain came from America and of hemp from India.

The increase of commercial intercourse with China and with Japan and the industrial progress of India led to a vast expansion of English trade with the East; the excess of exports from India and the East over the imports, and the

employment of English capital in railways and other industrial undertakings in India, made it necessary to export large quantities of silver to the East; this export, along with the necessity for remitting large sums of money to the Crimea for the support of the war there, produced a scarcity of bullion in England, and the bank rate of discount, which is an indication of the available amount of money in the country, rose from $2\frac{1}{2}$ per cent. in 1849 to 9 per cent. in 1857. In 1857 a commercial crisis in America was followed by a panic in England, and the stoppage of a number of banks in Liverpool, Glasgow and London, a great fall in prices, especially of Chinese and Indian goods, and much financial embarrassment; the crisis was alleviated as before by the Government allowing the Bank of England to extend their issue of notes beyond the prescribed limit.

Commercial relations between France and England were improved by the Treaty of Commerce concluded between the two countries in 1860; by this treaty, which was to last for ten years, France agreed to remove all prohibitions from her tariff and to reduce the duties on a number of articles of British produce and manufacture, and England agreed to abolish the duty on a number of articles of the production or manufacture of France, and to reduce the duties on wines and spirits; English trade with France increased from £26,432,000 in 1859 to £59,590,000 in 1870. Similar treaties were concluded by England with Belgium (1862), Italy (1863), the Zollverein or fiscal union of German states (1865), and Austria (1865).

The Civil War between the Federal and Confederate States of America (1861-65) produced serious disturbance in English trade. The Southern States of America were the chief source of the English cotton supply; in 1860 England imported 1,391,000,000 pounds of cotton, of which 1,115,890,000 pounds came from the United States. The blockade of the ports of the Southern States interrupted this supply, and in

1862 the imports of cotton from the United States sank to 6,394,000 pounds. The price of cotton in consequence rose enormously and in 1864 was more than four times what it was in 1860. The imports of cotton from India increased enormously, but not sufficiently to meet the demand, and there was a cotton famine in Lancashire causing widespread distress, which was not relieved till the American Civil War ended. The transmission of silver to India to pay for the increased importation of cotton, and a great increase in speculation caused by the formation of a large number of joint-stock companies, produced another financial crisis. The growth of joint-stock companies had been fostered by the Companies Act of 1862, which permitted any seven or more persons associated for any lawful commercial purpose by subscribing a memorandum of association to constitute themselves a company, with limited or unlimited liability; the Act facilitated the formation of companies, the liability of a shareholder in which is limited to the amount of the shares which he takes. From 1856 to 1868 there were formed in England 7,056 companies, of which 6,960 were limited liability companies. Many of these were companies of a highly speculative character; excessive speculation and the drain of treasure to the East produced the crisis of 1866, when the great banking and financial company of Overend, Gurney and Company failed and there followed a large number of failures, a sudden panic, and a great fall in the value of the shares of banking and other public companies; the bank rate of discount was raised to 10 per cent., and for the third time the Bank of England was allowed to transgress the limits of the Bank Charter Act. Since 1866, although there have been periods of commercial depression, and although the number of joint stock companies has been constantly increasing and there has been much gambling and speculation in trade, there has been no great panic in London similar to that which is connected with the failure of Overend, Gurney and Company.

Currency.

The currency was established on a satisfactory basis by an Act of 1816, which declared that thenceforth gold alone should be the standard value, and that silver, which previously had been legal tender to any amount, should be legal tender to the extent of 40s. only. In 1833 Bank of England notes were made legal tender in all transactions except at the Bank itself. The enormous increase in the gold supplies caused by the discovery of gold in California in 1847 and in Australia in 1851 induced some continental countries to reduce the number of their gold coins, and silver as compared with gold for a short time increased in value, but England made no change, and the wisdom of the policy of its statesmen was seen in the fact that the plethora of gold soon disappeared with an enormous expansion of trade all over the world, and gold soon recovered its ancient supremacy. The value of silver declined for a time; it sank in London from 3s. 11 $\frac{3}{4}$ d. per oz. in 1890, to 2s. 0 $\frac{3}{4}$ d. in 1908.

National Debt.

Considerable progress was made after 1815 in paying off part of the permanent National Debt, which in 1909 stood at £754,121,309 as compared with £861,039,049 in 1815; the annual charges have also been lightened by the conversion of stock bearing a high rate of interest into stock issued at a lower rate. The interest, which was 8 per cent. when the debt was funded in 1694, had been lowered to 5 per cent. in 1822, in which year the 5 per cent. stock was reduced to 4 per cent.; in 1824 and 1830 the 4 per cent. stock was reduced to 3 $\frac{1}{2}$, and subsequently the 3 $\frac{1}{2}$ was reduced first to 3 and afterwards to 2 $\frac{3}{4}$, and some of the Government stocks pay interest at the rate of 2 $\frac{1}{2}$ per cent. only.

Industrial Legislation. Trade Unions.

Up to 1824 severe laws had been in force prohibiting the combination of workmen for the purpose of obtaining an advance of wages or for similar purposes. In 1824 and 1825 these laws were repealed, and in 1871 an Act was passed by which trade unions were legalised. Trade Unions have grown considerably in power and wealth in modern times, and the consequence has been the increase of strikes and lock-outs. In 1824 the legislative restrictions on the free movement of workmen (see *ante* page 168) were repealed. Considerable improvement in the administration of the poor law was introduced by the Poor Law Amendment Act of 1834, which established a central body (now the Local Government Board), to supervise the administration of the law and to group parishes into unions; the duty of relieving the poor was transferred from the overseers to Boards of Guardians created for each union. The Statute of Apprentices (see page 143) was repealed partly in 1814 and wholly in 1875.

Truck Acts.

The various Acts that had been passed from 1464 onwards prohibiting the payment of wages in goods had proved ineffective, and more stringent measures were passed in the Truck Acts of 1831, 1887 and 1896, prohibiting the payment of wages of artificers except in cash, and restricting the exaction of fines and deductions from wages.

Factory Acts.

The evils resulting from the collection of large numbers of workers in factories led to the passing of a number of Acts to limit the hours of labour in factories, and to provide means to protect the health of the factory workers. The earliest of these Acts were the two passed at the instance of Sir Robert Peel (the father of the statesman) in 1802 and 1819 with reference to cotton, woollen, worsted and flax mills. More comprehensive Acts were afterwards passed in 1832, 1867,

1878, 1883, 1891, 1895 and 1901 to limit the employment of children and women, to provide for holidays and for sanitary regulations, and for the appointment of factory inspectors to ensure the carrying out of the provisions of the Acts. Acts of a similar character have been passed relating to workers in mines.

The Merchant Shipping Acts of 1894 and 1906 contain a number of provisions for securing the safety, comfort and well-being of sailors engaged in British merchant ships.

Other Acts passed in the interests of the working classes are the Employers' Liability Act, 1880, providing for the compensation of workmen injured in the course of their employment in certain cases, and the Workmen's Compensation Acts, 1897 and 1906, which extend still further the obligation of the master to make compensation for injuries caused by accidents to workmen, and the National Insurance Acts, 1911 and 1913, for the compulsory insurance of employed persons whose wages fall below a certain limit.

The effect of these Acts and of the many trade disputes of recent years has been to add largely to the cost of manufactured goods.

Trade of the United Kingdom in 1908.

The enormous development of the foreign trade of the United Kingdom is seen in the progressive increase of the exports and imports; in 1908 the total value of the imports was £593,140,723, and of the exports £456,727,521. The value of the imports has increased more than nineteen-fold since 1800, and of the exports more than eleven-fold. The excess of imports over exports is a feature of recent years; up to 1850 the exports exceeded the imports, but from 1850 onwards the imports have always exceeded the exports. This excess of imports over exports is generally explained by the facts that large amounts of English capital are invested in foreign government securities and industrial enterprises, and that English shipping carries a large proportion of the trade of the world. We are paid by imports for interest on capital invested abroad and for charges for carrying merchandise.

The ships over 100 tons owned by all countries of the world in 1909-10 numbered 30,540 ; of these 9,491 belonged to the United Kingdom alone and 2,074 to the English colonies.

CHAPTER V.

Commerce before the Great War.

The years immediately preceding the Great War were marked by great commercial activity, an increase in trade disputes and rigorous competition by foreign countries, especially the United States and Germany.

The imports into and exports from the United Kingdom continued to increase. In 1911 the exports were of the value of £680,559,000, the exports of British produce and manufacture were of the value of £454,282,000 and of re-exports £102,721,000. In 1912 the imports were of the value of £744,896,514 and the exports of British produce and manufacture were of the value of £487,434,002 and the re-exports of the value of £111,857,903. In 1913 the imports were of the value of £769,033,959, the exports of British produce and manufacture were of the value of £525,461,416, the re-exports of the value of £109,655,718.

The most important of the imports are articles of food and drink, raw cotton, raw wool, rubber, petroleum, oil seeds, and copper ; the most important of the exports were cotton manufactured goods, iron and steel manufactured goods, coal, and woollen manufactured goods. There has been a great increase in the demand for rubber which is used to make the rims of the wheels of motor vehicles, for petroleum and other oils which are used to supply motor-power vehicles and machinery, and for palm kernels and oil seeds to produce margarine and for copper for use in electrical machinery. There has also grown up in recent years a demand for new metals such as tungsten and wolfram which are used to harden steel tools ; tungsten is also used as a filament in electric incandescent lamps.

In the building of ships to carry on the commerce of the world the United Kingdom still retained its supremacy. Of the ships over 100 tons built throughout the world in 1913 the gross tonnage built in the United Kingdom amounted to 1,932,153 and in other countries to 1,400,729 tons.

The gross tonnage of merchant ships owned in the United Kingdom in 1912 was 18,213,620 tons; the gross tonnage of merchant ships owned in Germany, which came next in the list to the United Kingdom, was in the same year 4,628,988.

Germany was a formidable competitor in shipbuilding as in other departments of commerce. In 1914 the largest British steamer was the White Star Line *Olympic*, of 46,359 tons, but Germany possessed two larger steamers, the Hamburg-Amerika Line *Vaterland* of 57,000 tons, and the *Imperator* of 50,000 tons.

As regards the trade entering and leaving sea-ports, if we arrange the sea-ports of the world according to the amount of tons entered and cleared in each, we shall find that New York in 1914 headed the list with 31,000,000 tons entered and cleared, Hamburg came next with 28,000,000 tons, Antwerp with 26,000,000, Hong Kong with 24,000,000, Monte Video with 20,000,000, and London with 17,000,000. Of this trade, however, by far the greatest amount was done by British-owned ships.

Many improvements have taken place in recent years in ship-building, such as in the use of turbine and oil-driven engines, of tank-ships for the conveyance of oil, while attempts have been made with varying success to use a new material by building ships and barges of ferro-concrete.

One of the most important events in the history of maritime commerce in recent years was the opening, in 1914, of the canal built by the United States of America across the isthmus of Panama. The building of this canal has considerably shortened the sea voyage from Europe to the western coasts of America.

The number of inventions and improvement in recent

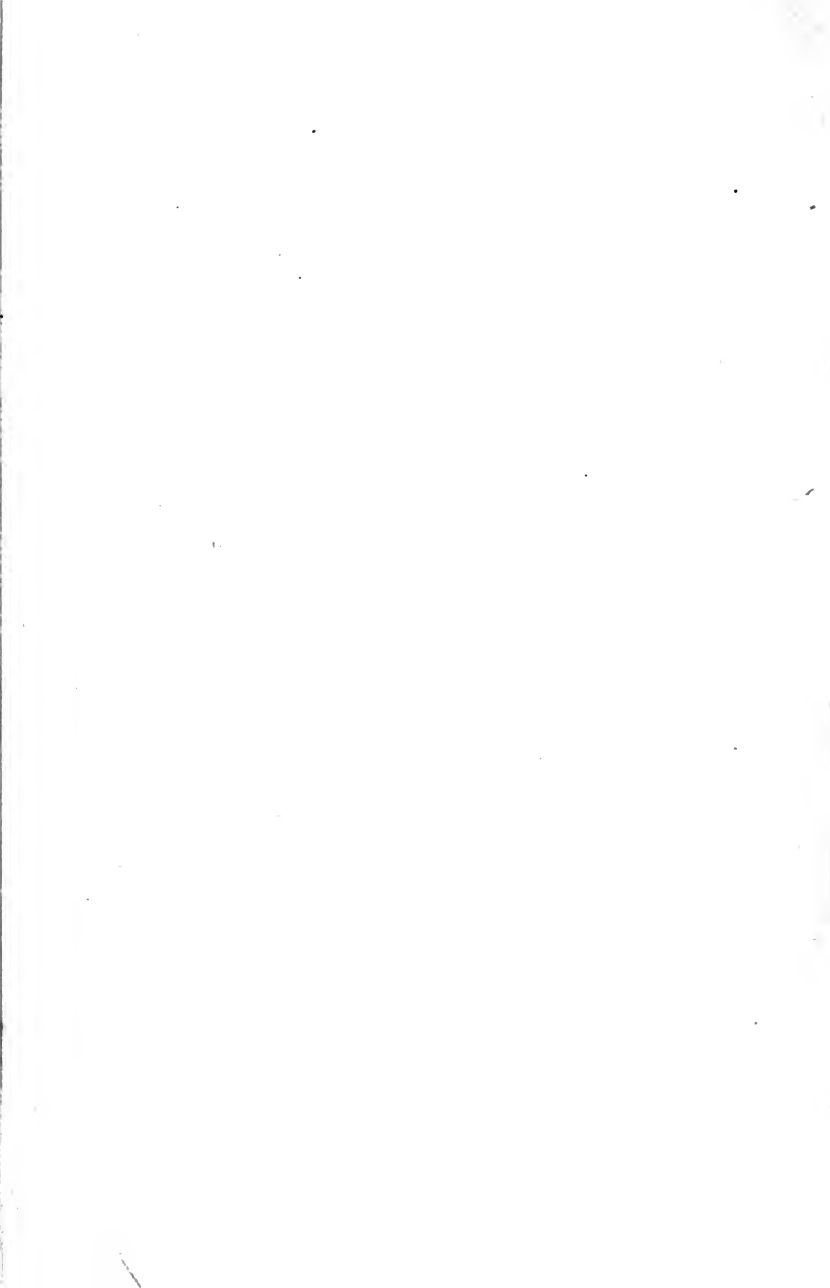
years has been enormous. Among them may be mentioned the use of wood pulp for the manufacture of paper, in the materials for the making of which there has been for some years a great scarcity, and the use of steel and concrete in the frame-work of large buildings.

The population of the United Kingdom, according to the census of 1911, reached the figure of 45,516,259 persons. In the population of England and Wales there was an increase of a little under four millions, as compared with the census of 1901. The population of Scotland and Ireland has remained nearly stationary, and of the total number of inhabitants in the United Kingdom 79 per cent. live in England and Wales.

The dependency of England on supplies from abroad, above all as regards articles of food and drink, has grown with the increase of the population and accounts for the increase of imports. The outbreak of the Great War revealed this dependency in a remarkable way, as the prices of the commonest articles rose enormously as the supply from Germany and Austria was cut off. Up to the outbreak of the war the ideal of English commercial policy, since the victory of free trade views, had been to ensure cheapness and to favour the consumer; this involved unlimited foreign competition and dependence on foreign countries for supplies. The war showed that cheapness obtained in this way could only last so long as peace lasted, and there have been signs of a return to the policy of the mercantile system, the ideal which was to secure not cheapness but national power.

TABLE OF DATES.

	B.C.		A.D.		A.D.
Gades founded about	1050	Privileges of Hanse		Hargreaves invents the	
Carthage „	850	Merchants in Eng-		Spinning Jenny	1774
Rome	753	land abrogated	1578	Adam Smith's <i>Wealth</i>	
Earliest Greek colony		Cavendish sails round		of <i>Nations</i>	1776
in Italy	before 735	the world	1586-8	First iron bridge (Coal-	
Trireme invented about	700	Guinea (African) Com-		brookdale)	1777
Byzantium founded	657	pany formed	1588	Crompton invents the	
Massalia „	597	William Lee invents		Mule Jenny	1779
Lydians coin gold about	568	the stocking frame	1589	Independence of United	
Greeks defeat Persians		Lancaster's voyage to		States recognised	1783
at Salamis	480	the East Indies	1591-2	Inventions of Onions	
Peloponnesian War	431-404	East India Company		and Cort	1783-4
Conquests of Alexander		formed	1600	American cotton sent	
the Great	331	Poor Law	1601	to Liverpool	1784
Destruction of Car-		Dutch East India Com-		Cartwright invents the	
thage	146	pany formed	1602	power loom	1787
Augustus, Emperor of		Permanent settlement		First English settle-	
Rome	30	of Virginia	1607	ment in Australia	1788
Fall of the Empire of	A.D.	Permanent settlement		First iron vessel	1790
the West	476	of Canada	1609	Union of England and	
Norman Conquest	1066	Earliest specifications		Ireland	1801
Domesday Survey	1086	of patents	1617	Berlin Decrees	1806
The Crusades	1095-1270	Dud Dudley smelts iron		Orders in Council	1806-7
Bank of Venice		with pit coal	1619	Abolition of the slave	
founded	1171	Foundation of Plymouth		trade	1807
Magna Charta	1215	(America)	1620	First Gas Company	
Beginning of the Han-		Massacre of Amboyna	1623	formed	1810
seatic League about	1239	Excise duties introduced	1643	Koenig invents the	
Travels of Marco Polo	1271	Navigation Acts	1651, 1660	steam printing	
Merchant Adventurers		English capture		machine	1811
at Antwerp	1296	Jamaica	1655	The <i>Comet</i>	1812
Ordinance of the Staple	1328	Commercial Dock		Gold made the sole	
Black Death	1348-9	opened	1660	standard	1816
Statutes of Labourers		French East India		First steamship crosses	
1351, 1357, 1360		Company formed	1664	the Atlantic	1819
Ordinances against		Hudson's Bay Com-		Huskinson's free trade	
usury	1363, 1390	pany formed	1670	measures	1823
Peasant Revolt	1381	First regular fire insur-		Stockton and Darling-	
First Navigation Act	1389	ance office	1681	ton railway opened	1825
Portuguese begin to		Dampier visits Aus-		First steamship from	
explore Africa	1418	tralia	1688	England to India	1825
First book printed in		Bank of England		Abolition of slavery by	
England	1474	founded	1694	England	1834
Diaz reaches Cape of		Savery's steam-engine	1698	Electric telegraph in-	
Good Hope	1486	Methuen Treaty	1703	vented	1837
Columbus crosses the		Union of England and		Cunard Company	
Atlantic	1492	Scotland	1707	founded	1838
Cabot discovers Labra-		Construction of wet		Penny post established	1840
dor	1497	dock at Liverpool	1709	Bank Charter Act	1844
Discovery of Newfound-		Newcomen's atmos-		Repeal of the Corn	
land	1498	pheric engine	1711	Laws	1846
Vasco da Gama sails		Treaty of Utrecht	1713	Repeal of the Naviga-	
round Africa	1498	South Sea Bubble	1720	tion Acts	1849
Magellan's expedition		Lloyd's List started	1726	Government of India	
1519-1522		Victory of Clive at		transferred to the	
Chancellor's voyage to		Plassy	1757	Crown	1858
Russia	1553	Brindley's first canal	1761	Atlantic Cable laid	1865-6
Jenkinson's travels	1557-1571	Peace of Paris	1763	Dominion of Canada	
Sir John Hawkins		Stamp Act	1765	formed	1867
begins the Atlantic		Captain Cook's voyages	1768-1779	Suez Canal opened	1869
slave-trade	1562	Watt patents his steam-		Commonwealth of Aus-	
Statute of Apprentices	1563	engine	1769	tralia formed	1900
Royal Exchange founded	1568	Arkwright patents his		Panama Canal opened	1914
Drake sails round the		spinning-roller	1769	Outbreak of the Great	
world	1577-80	Stock Exchange formed	1773	European War	



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